

UNCLASSIFIED

AD 273 834

*Reproduced
by the*

**ARMED SERVICES TECHNICAL INFORMATION AGENCY
ARLINGTON HALL STATION
ARLINGTON 12, VIRGINIA**



UNCLASSIFIED

**Best
Available
Copy**

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

REPORT
ESTAC-273834
CATERPILLAR
AS

MEMORANDUM REPORT

M62-19-1

DESCRIPTION AND OPERATION
OF A HAND HELD WIRE GUN

by

A. J. Grandy

and

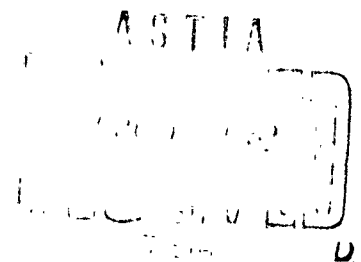
J. W. Zettel

OMS Code 5520.12.468 IO

DA Project 596-10-001

February 1962

338 000



REPORT M62-19-1



FRANKFORD ARSENAL

PHILADELPHIA 37, PA

Frankford Arsenal
Philadelphia 37, Pa.

Memorandum Report M62-19-1
February 1962
OMS Code 5520.12.468 IO
DA Project 596-10-001

DESCRIPTION AND OPERATION
OF A HAND HELD WIRE GUN

Prepared by:

A. J. Grandy

A. J. GRANDY
Ord. Eng. Technician

J. W. Hettel

J. W. HETTEL
Ord. Eng. Technician

Reviewed by:

R. T. Fillman

R. T. FILLMAN
Project Engineer

F. J. Shinaly

F. J. SHINALY
Chief, Design Eng. Branch

H. L. ROSENBERG
Dep. Chief, Ballistics System Div.

Approved by:

H. P. MANNING
Acting Chief
Ballistics System Division

TABLE OF CONTENTS

<u>Section Title</u>	<u>Page No.</u>
OBJECT.	1
SUMMARY	1
DESCRIPTION OF WIRE GUN	2
OPERATING INSTRUCTIONS.	4
Notes	5
REFERENCES	6
APPENDIX A	23
APPENDIX B	27
APPENDIX C	56
DISTRIBUTION	70

OBJECT

To develop a self-energized hand held wire gun for unconventional warfare forces that will provide an effective means of capturing personnel alive, stopping riots, and erecting fast barriers in rough terrain.

SUMMARY

↙ A hand-held version of a wire gun was designed and developed, and a sample lot ^{was} fabricated for use in controlled tests.

During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.

Complete descriptions of ^{the} design and operation of ^{the} ~~this~~ device are ~~contained in this report~~ ^{presented}.

DESCRIPTION OF WIRE GUN

The wire gun developed for this application is intended primarily for use by individuals for short range operation against personnel encountered during riots or quelling an unruly mob. This device can also be used to sow or entangle a mass of barbed wire across narrow roads, paths, and the like. The completely assembled unit, ready for use is shown in figure 1.

The wire in this coil is a high strength rectangular steel wire which has been barbed and then wound in such a manner that it is not overstressed during the winding process. Upon release of the coil end, stored energy propels the wire out of the tube in a straight line so that the wire extends to a range of approximately 80 feet.

The complete system consists of a double action spring initiating assembly, a barbed wire coil, an outer container assembly, and an end cap with wing nut. See figure 2.

Initiating Mechanism

The double action spring initiating assembly is composed of four main parts; the pull ring, which is a brazed steel ring, a sear rod which has an angular cut on one end, a piston which has a mating end to fit in the sear rod, and the initiating spring. Attached to the pull ring is a red aluminum tag labeled "Pull ring to Fire." In operation, the sear rod and piston are locked together by means of mating cuts in the rod ends and act as a single unit as the pull ring is retracted to fire the device. At a point when the angled cut in the sear rod is retracted clear of the container (approx. 2.0 inches), it will release and allow the spring to reverse piston direction and propel it out of the container with the connected coil end.

Safety Assembly

The safety assembly is composed of a standard firing safety pin, a steel pull ring, and a black aluminum tag labeled "SAFETY." This safety pin, when inserted properly, gives a positive visual indication that the device is safe to handle.

Wire Coil

The wire coil is composed of approximately 450 feet of flat, high strength, barbed steel wire. It is wound in such a manner that the wire contains energy and upon release of the coil end, releases this energy to propel the wire to a range of approximately 80 feet. The wire coil weighs 8.2 lb.

Outer Container Assembly

The outer container is constructed of a steel cylinder and steel end cap brazed together. The cylinder is ten inches long and three and three-quarter inches in diameter. A steel holder is brazed into the end cap which houses the initiating mechanism.

End Cap and Wing Nut

The steel end cap contains a fiber washer which seals this end from moisture. The wing nut is assembled with an "O" ring, and is threaded into the end of the piston for shipping purposes. This wing nut also acts as a double safety. It is impossible to retract the sear rod when the wing nut is in place, even if the safety pin should be removed. The total weight of metal parts is approximately 2.5 lb.

Complete details of construction are contained in appendix B.

OPERATING INSTRUCTIONS

Wire guns supplied in the field will be available in standard T46 ammunition cans. See figure 3. Each of the four wire guns contained in a can will be packaged in a fiberboard cylinder and equipped with a canvas carry bag. See figure 4.

Upon receipt, the units should be removed from the ammunition can as illustrated in figure 5. The pull tape is removed from the shipping cylinder and the end cap lifted as shown in figure 6. The wire gun will be exposed upon removal of the packing excelsior and cardboard spacers. Complete packing arrangement within the tube is illustrated in figure 7. The wire gun can now be removed from the fiberboard cylinder as shown in figure 8.

In field use individual wire guns are carried in a canvas bag which is slung over the shoulder. The nylon belt which is supplied should be used when firing from the waist. The "PULL RING" of the firing assembly snaps onto the belt as shown in figure 9.

In order to prepare the device for firing, the end cap is removed by unscrewing the wing nut, (figures 10 and 11).

When ready to use, the safety pin is removed by pulling the ring with black tag labeled "SAFETY." (Figure 12) Three methods are suggested for initiation and operation of this device.

Figure 13 depicts the first and recommended method of firing. A nylon belt is supplied in each shipping container. The belt is worn around the user's waist and the "pull ring" of the device snaps onto it. With the device attached to the belt the gun is held securely with both hands and pulled away from the body. A force of 20 lbs. is required to retract the firing assembly two inches after which it will unlatch. Spring force will then propel the piston out of the container and expel the leading edge of the wire. The barbed wire will begin paying out, up to an approximate range of 80 feet. The gun may be guided by maneuvering the container similar to a water hose to lay wire on target. It will take approximately 6 or 7 seconds to expend the complete contents of the coil.

The second method of initiating the device is shown in figure 14. The gun is held in the crook of the left arm and actuated with the right hand.

The third method is depicted in figure 15. The device is aimed with the left hand and actuated with the right hand.

Figure 16 shows a section of wire as it would appear coming from the gun.

Notes:

1. There are no propellants or explosives used in this device. Velocity imparted to the wire is "built in" during the winding of the coil.
2. These devices are in the development stage and are not intended as fully qualified and tested equipment.
3. Each device has a serial number engraved on the end of the sear rod and is intended to be used for identification of the device in case of abnormal operation. In case of any such abnormal operation this serial number should be noted and transmitted back to the manufacturing agency.
4. Wherever possible, all used metal parts should be returned to sender for reloading.

REFERENCES

1. A. J. Grandy, "A Proposal for the Development of a Wire Gun," Frankford Arsenal Proposal P60-5-1, June 1960.
2. Frankford Arsenal Brochure, "Barnyard Ordnance," April 1961; classified SECRET.

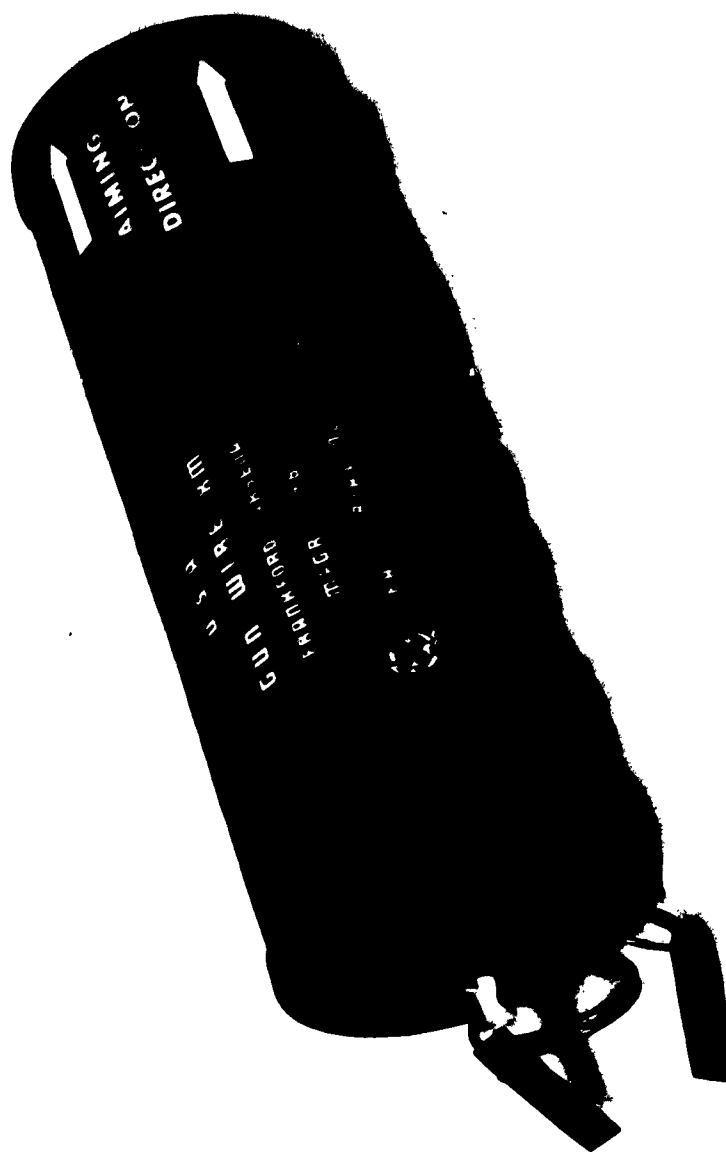


Figure 1. Gun, Wire, XM - Exterior View

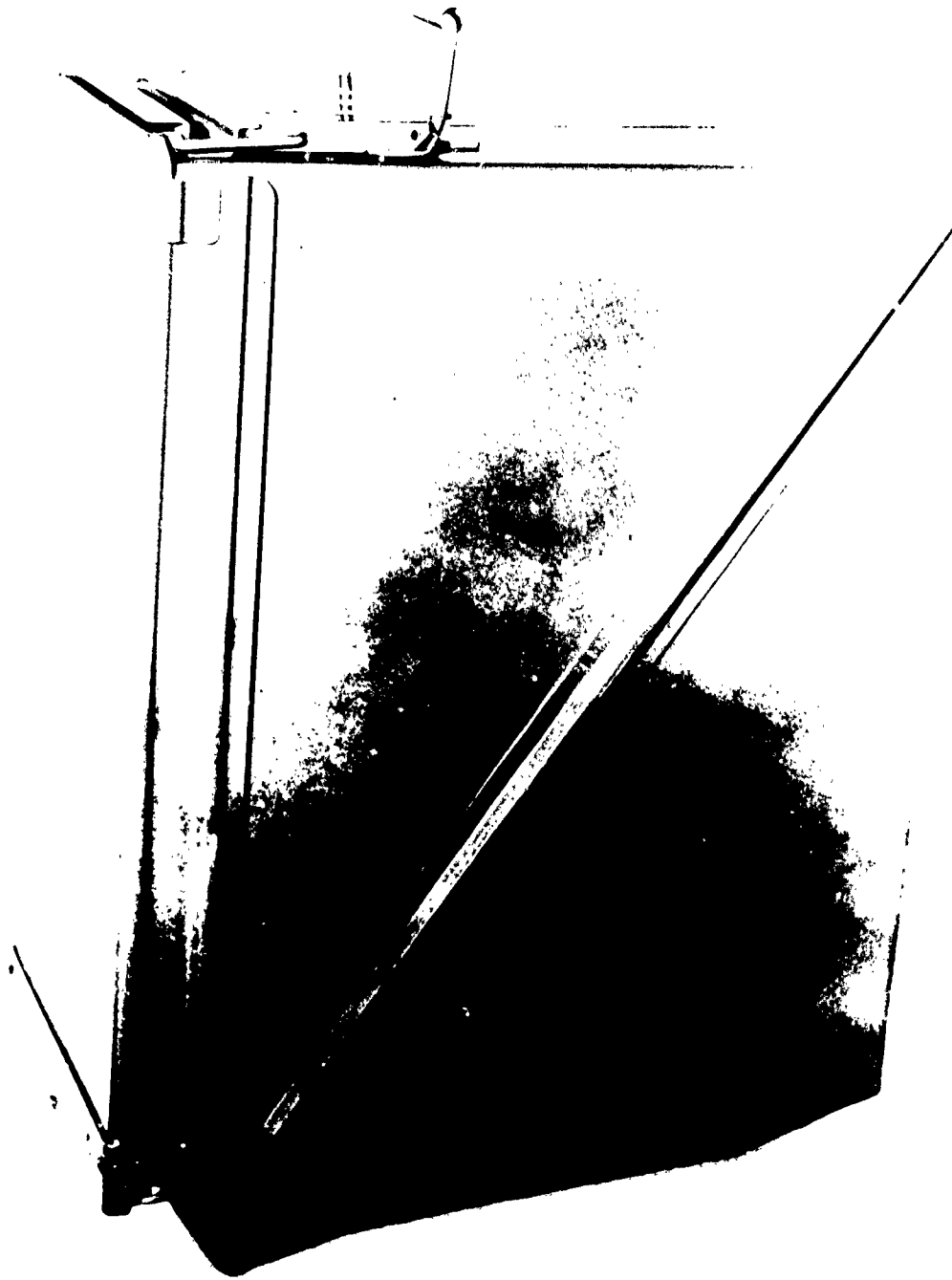


Figure 3. Side View of Wire Gun Shipping Can

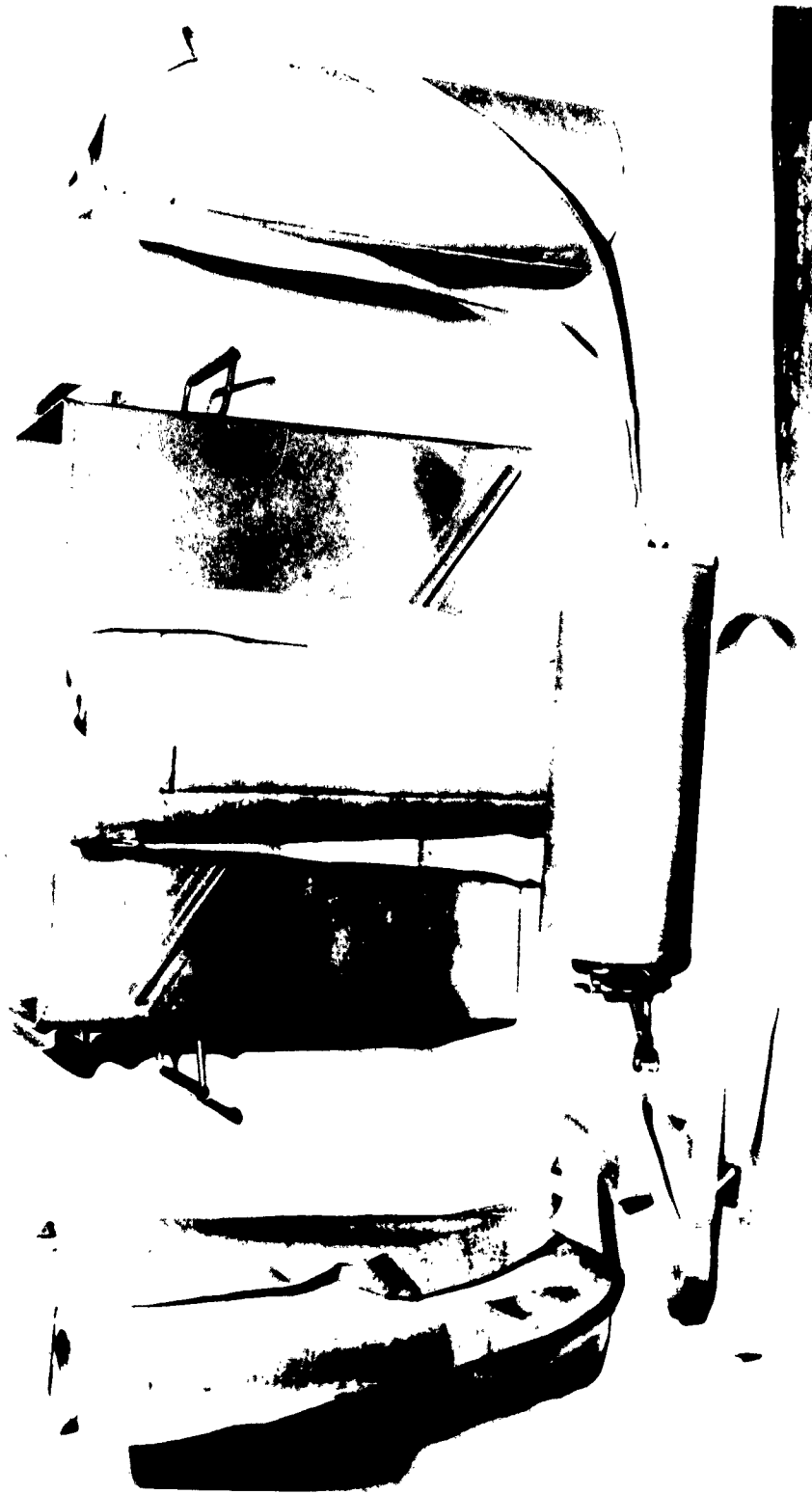


Figure 4. Four Wire Guns are Loaded in Each Shipping Can



Figure 5. Wire Gun and Carry Bag Being Removed from Shipping Can



Figure 6. Removing Cap from Cardboard Container

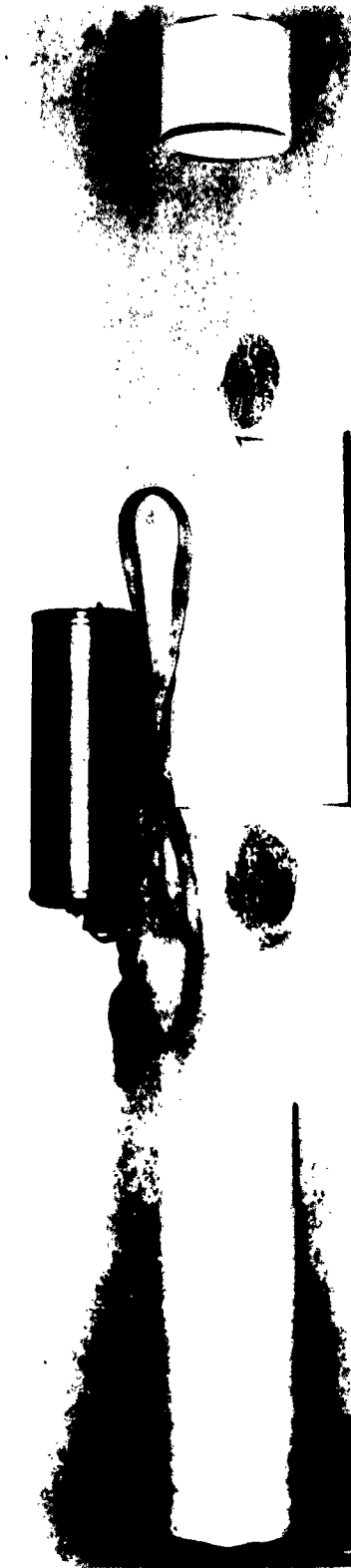


Figure 7. View of Wire Gun Packing Materials



Figure 8. Removing Wire Gun from Cardboard Container



Figure 9. Belt Attachment to Wire Gun



Figure 10. Step 1 - Unscrew Wing Nut



Figure 11. Step 2 - Remove End Cap



Figure 12. Step 3 - Remove Safety Pin



Figure 13. Belt Method of Firing Wire Gun



Figure 14. Elbow Rest Firing Position



Figure 15. Hand Held Filing Position



Figure 16. Wire Sample After Fired From Gun

APPENDIX A

DEVELOPMENT OBJECTIVE

DEVELOPMENT OBJECTIVE

Statement of Requirement

a. The requirement is for a coil of high strength steel wire wound in such manner that when its inner end is released it axially extends in essentially a straight line to a range of up to 100 feet using stored energy resulting from the winding process. With barbs on the wire, an antipersonnel or riot control weapon is created for field use. This wire gun will significantly increase the capabilities of unconventional warfare forces to harass the enemy and to support theatre operations.

Materiel

A. Performance Required

The wire gun must be positive in action, once released it must continue to exude wire until the entire coil is expended. Configuration of the wire mass at the target must be in accordance with its designed use. For antipersonnel use the barbs must be positioned so as to hamper escape of personnel enmeshed. For riot control the wire must "ball" with open barbs so as to halt a crowd. The wire gun device must be positive, simple, and reliable for use by indigenous personnel in unconventional warfare operations. Temperature within the target area must not be a limiting factor to its effectiveness.

B. Description of the Desired Equipment

A wire gun similar to that developed by F. A.* should be considered. With design modifications, it should be effective in a wide

*A. J. Grandy, A Proposal for the Development of a Wire Gun, Frankford Arsenal Proposal P60-5-1, June 1960.

variety of applications. The basic design consists of a seemingly harmless coil of wire. The internal energy is achieved by a special winding process. The intended use will determine the size and geometry of the wire. If sophistication is required, it will be concealed in the coil core.

Qualitative Characteristics

1. The device must resemble a harmless coil of wire to facilitate shipment or carry into an area of covert operations.

2. A positive and simple means of employment in the intended application must be provided. A minimum number of types are desired for multiple uses, but a family of devices is acceptable. Non-explosive devices are desired but incorporation of propellant will be acceptable if warranted by extension of range.

3. The device must be such that the source of wire cannot be determined from the expended wire.

4. Storage conditions and effective life must not be critical.

Operational and Organizational Concepts

1. Operational Concept - The device will provide unconventional warfare forces with an efficient means of capturing personnel alive, stopping riots, and generally reaching inaccessible positions.

2. Organizational Concept - The devices will be issued to unconventional warfare forces under the appropriate table of allowances.

3. Operational Urgency - These devices are required as early as possible, preferably within one year.

Maintenance Concept


There shall be no maintenance required for the device in storage or in the field, during its service life.

APPENDIX B

DETAIL DRAWINGS

Note:

Detail drawings and packaging instructions located in appendixes B and C are presented **FOR INFORMATION ONLY** and should not be used for manufacturing purposes.

<p>SPRING DATA</p> <p>MAX OD .500 \pm .020</p> <p>MIN ID .380</p> <p>TO SUPPORT 23LBS \pm 10% @ 3 INS.</p> <p>WIND RIGHT HAND</p> <p>TYPE OF ENDS CLOSED AND GRIND</p> <p>MAX SOLID HEIGHT 2.012</p> <p>WIRE DIA .0625</p> <p>PITCH DIA .443</p> <p>ACTIVE COILS 30</p> <p>FREE HEIGHT 6.00 \pm .03</p> <p>TOTAL NO. OF COILS 32</p>				<p>SPRING</p>		<p>RD GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. ARSENAL FRANKFORD</p>		<p>FA 53758</p>	
<p>APPROVAL</p>		<p>REVISIONS</p>		<p>DATE</p>		<p>APPROVAL</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>		<p>DATE</p>	
<p>TYPE</p>		<p>DATE</p>							

PHYSICAL PROPERTIES		APPLICATION		FA 32228			
YP		NEXT ASSY	USED ON	REVIEWS			
TS			FA 32224	SYN	DESCRIPTION	DATE	APPROVAL
CL 2							
RA							
BN							
RH							
	DO NOT	APPLY PART NO.					
	DO	AS SPECIFIED					

NOTE:

1- MUSIC WIRE, COMP A, COLD DRAWN
SPEC QQ-W-470

2-CADMIUM PLATE, SPEC QQ-P-416
CLASS A (.0005 THK), TYPE I.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON-	ORIGINAL DATE OF DRAWING 2-9-62	PIN SAFETY	R & D GT20 11
DECIMALS ± .005	DRAWNMAN JVA		
FRACTIONS ± 1/64	CHECKER JME		
ANGLES ± 1°	TRACER		
MATERIAL SEE NOTE 1	ENGINEER	ENGINEER	ORDNANCE CORPS
HEAT TREATMENT	SUBMITTED	ORD CORPS	DEPT OF THE ARMY
FINAL PROTECTIVE FINISH SEE NOTE 2	APPROVED BY ORDER OF THE CHIEF OF ORDNANCE		U.S. ARMY ORD ARSENAL FRANKFORD
	ORD CORPS	SCALE	DWG SIZE A
			FA 32228

Figure B-2. Pin, Safety

PARTIAL SPECIFICATION		APPLICATION		FA 32199			
ITEM	PART NAME	USED ON	REVISED	DESCRIPTION	DATE	APPROVAL	
1	SAFETY	FA 32224					
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
64							
65							
66							
67							
68							
69							
70							
71							
72							
73							
74							
75							
76							
77							
78							
79							
80							
81							
82							
83							
84							
85							
86							
87							
88							
89							
90							
91							
92							
93							
94							
95							
96							
97							
98							
99							
100							

MATERIAL : 16 GA ALUM (2024-T3)
 LETTERS : LUSTERLESS WHITE NO. 37886,
 FED. STD NO. 595. SPEC TT-I-558
 OVER BLACK BACKGROUND (BOTH SIDES)

DIMENSIONS SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS _____ FRACTIONS _____ ANGLES _____ MATERIAL SEE NOTE HEAT TREATMENT FINAL PROTECTIVE FINISH	ORIGINAL DATE OF DRAWING 2-7-62 DESIGNED J.V.F. CHECKED J.M.F. TROCK CHECKER ENGINEER DIVISION SUBMITTED J. J. Gandy ORG CORPS APPROVED BY ORDER OF THE CHIEF OF ORDNANCE ORG CORPS	TAB, SAFETY	R & D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. ARSENAL FRANKFORD DWS SIZE A FA32199
--	--	-------------	---

Figure B-3. Tab, Safety

PROPERTIES		APPLICATION		FA 32226			
YP		NEXT ASSY	USED ON	REVISIONS			
TS			FC11303				
EL 2				SYM	DESCRIPTION	DATE	APPROVAL
RA							
BN							
RH		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

OLIVE DRAB

YELLOW LETTERS

U.S.A. GUN, WIRE, XM FRANKFORD ARSENAL MEGR. 1961 FA SERIAL NO.

3

1 1/32

3/16 (TYP)

1/16 (TYP)

9/32

2 13/16

YELLOW

OLIVE DRAB LETTERS

SOURCE : NATIONAL DECALCOMANIA CO.
236-40 N. 60TH ST
PHILA. PA. OR EQUIVALENT

DECAL, IDENTIFICATION

R&D GROUP

ORDNANCE CORPS

DEPT OF THE ARMY

U.S. ARMY ORDNANCE

FRANKFORD

DWG SIZE A

FA32226

SCALE 1/1

UNIT WT

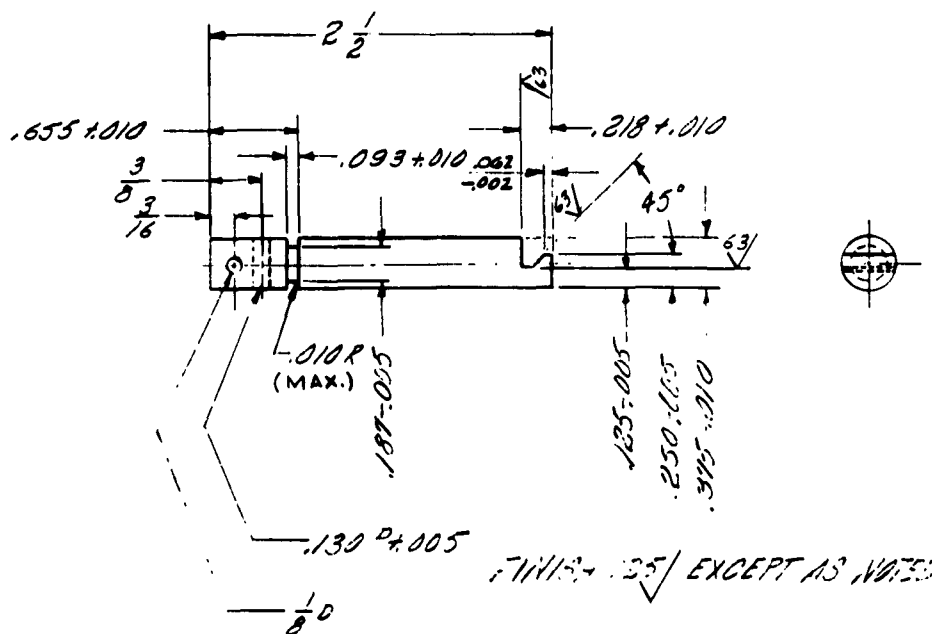
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE

ORD CORPS

Figure B-4. Decal, Identification

PHYSICAL PROPERTIES		APPLICATION		FA 32122			
YP		NEXT ASSY	USED ON	REVISIONS			
TS			FA 32218	SYM	DESCRIPTION	DATE	APPROVAL
EL 2							
RA							
BH							
RH							
		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

NOTE:- BREAK ALL SHARP CORNERS



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS FRACTIONS $\pm 1/64$ ANGLES $\pm 30'$ MATERIAL: ALUMINUM (2024 T3) SPEC 5-A-1 HEAT TREATMENT FINAL PROTECTIVE FINISH	ORIGINAL DATE OF DRAWING 2-9-62 DESIGNED JEF TRACER JEF ENGINEER JEF SUBMITTED APPROVED BY ORDER OF THE CHIEF OF ORDNANCE ORG CORPS	3' E 4' 8"	RD GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORDN. ARSENAL FRANKFORD DWG SIZE A FA 32122	

Figure B-5. Sear

GENERAL INFORMATION		APPLICATION		AFA 32310			
YP		TEXT ASBY	USED ON	REVISIONS			
TS			FA 32218	SYN	DESCRIPTION	DATE	APPROVAL
EL 2							
BA							
BN							
RN		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

1.40 +.04

$\frac{1}{16}$ WHEN SPRING IS COMPRESSED TO 1.34 O.D.

ZINC PLATE, CHROMATE DIP, TYPE 1, CLASS RSC, SPEC 57-0-2. TO BE GIVEN A DEHYDROGENATION BAKE AT 350° TO 400°F FOR 1 HOUR AFTER PLATING AND BEFORE CHROMATING.

DIMENSION SPECIFICATIONS DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS _____ FRACTIONS $\pm \frac{1}{64}$ ANGLES _____ MATERIAL MUSIC WIRE, TYPE A, QQ-W-479 HEAT TREATMENT _____ FINAL PROTECTIVE FINISH SEE NOTE	ORIGINAL DATE OF DRAWING 14 Feb 62 DESIGNED BY _____ TRACER _____ ENGINEER _____ SUBMITTED _____ APPROVED BY ORDER OF THE CHIEF OF ORDNANCE _____ ORD CORPS	RING	R&D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORG. ARSENAL FRANKFORD DWG SIZE A FA32310 SHEET 1 of 1
---	---	------	---

SCALE 2:1

Figure B-6. Ring

GENERAL PROPERTIES		APPLICATION		FA 53759			
TP		WET ASSY	USED ON	REVISIONS			
TS			FA 32217				
EL 2				SYN	DESCRIPTION	DATE	APPROVAL
RA							
DN							
DN							
DN		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

.500 \pm .005
 .380 \pm .010
 4
 63
 D
 .093 \pm .005
 AT ASS'Y
 125 /
 MACHINE FINISH EXCEPT AS NOTED
 BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS — FRACTIONS $\pm \frac{1}{64}$ ANGLES —	ORIGINAL DATE OF DRAWING 2-6-62 DESIGNED J.F.K. CHECKED J.M.F. TRACER — CHECKED — ENGINEER — ENGINEER —	R&D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD AREA FRANKFORD
MATERIAL STEEL, FC 1020 HEAT TREATMENT — FINAL PROTECTIVE FINISH	SUBMITTED <i>O.J. Grand</i> ORD CORPS APPROVED BY ORDER OF THE CHIEF OF ORDNANCE ORD CORPS	

HOLDER
 SCALE 1:1
 DWG SIZE A
 FA 53759

Figure B-7. Holder

PHYSICAL PROPERTIES		APPLICATION		FA 32219			
YP		NEXT ASST	USED ON	REVISIONS			
TS			FB 53790				
EL 2				SYM	DESCRIPTION	DATE	APPROVAL
RA							
OH							
RH		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

— BEND

— $\frac{7}{16} R$ MIN

— $.380^{+0.010}$

REMOVE BURRS AND CHAMFER EDGES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS _____ FRACTIONS _____ ANGLES _____	ORIGINAL DATE OF DRAWING 2-9-62	WASHER MODIFIED	240 92001 ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY JRD. ARSENAL FRANKFORD
	MATERIAL STEEL (F31020)		
HEAT TREATMENT _____	APPROVED BY ORDER OF THE CHIEF OF ORDNANCE _____ ORD CORPS	SCALE 2:1	DWG SIZE A FA32219

ARMT-AMSTAN ARSENAL (ORDNANCE), DETROIT, MI 48211-0001

Figure B-8. Washer, Modified

GENERAL PROPERTIES		APPLICATION		FA 32218			
YP		NEXT ASSY	USED ON	REVISIONS			
TS		FA 53790		SYN	DESCRIPTION	DATE	APPROVAL
EL 2							
RA							
BH							
RH							
		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON-</p> <p>DECIMALS _____</p> <p>FRACTIONS _____</p> <p>ANGLES _____</p> <p>MATERIAL _____</p> <p>HEAT TREATMENT _____</p> <p>FINAL PROTECTIVE FINISH _____</p>	<p>ORIGINAL DATE OF DRAWING 2-9-62</p> <p>REVISION <u>REV</u> <u>DATE</u></p> <p>DESIGNED _____</p> <p>ENGINEER _____</p> <p>SUBMITTED _____</p> <p><i>O. J. Yeand</i> ORD CORPS</p> <p>APPROVED BY ORDER OF THE CHIEF OF ORDNANCE</p> <p>ORD CORPS</p>	<p style="font-size: 1.5em;">SEAR ASS'Y</p>	<p>R&D GROUP</p> <p>ORDNANCE CORPS</p> <p>DEPT OF THE ARMY</p>
		<p>SCALE 1:1</p>	<p>FA32218</p>

Figure B-9. Sear, Ass'y

GENERAL PROPERTIES		APPLICATION		FA 32220			
YP		NEXT ASSY	USED ON	REVISIONS			
TS			FB 33790				
EL 2				SYN	DESCRIPTION	DATE	APPROVAL
RA							
BN							
BN							
RN		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON—</p> <p>DECIMALS —</p> <p>FRACTIONS —</p> <p>ANGLES ± 30°</p> <p>MATERIAL RUBBER MIL-R-3065</p> <p>HEAT TREATMENT</p> <p>FINAL PROTECTIVE FINISH NATURAL BLACK</p>	<p>ORIGINAL DATE OF DRAWING FEB. 9, 1962</p> <p>DESIGNER LEV</p> <p>CHECKER JMF</p> <p>TRACER</p> <p>ENGINEER</p> <p>SUBMITTED <i>[Signature]</i></p> <p>APPROVED BY ORDER OF THE CHIEF OF ORDNANCE</p> <p style="text-align: right;">ORD CORPS</p>	<p>BUSHING</p> <p>SCALE 2:1</p>	<p>R & D GROUP</p> <p>ORDNANCE CORPS</p> <p>DEPT OF THE ARMY</p> <p>U.S. ARMY ORD. ARSENAL</p> <p>FRANKFORD</p> <p>DWG SIZE A</p> <p>FA 32220</p>
---	--	---	--

Figure F-10. Bushing

GENERAL PROPERTIES		APPLICATION		FA 32227			
YP		NEXT ASSY	USED ON	REVISIONS			
TS			FC 11303				
EL 2				SYN	DESCRIPTION	DATE	APPROVAL
RA							
OH							
IN		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

SOURCE: NATIONAL DECALCOMANIA CO.
236-40 N. 60TH ST
PHILA., PA. OR EQUIVALENT

7-EQUALLY SPACED AROUND 3 5/8 DIA.

3/16 LETTERS YELLOW LETTERS AND ARROWS ON A OLIVE DRAB. BACKGROUND

YELLOW LETTERS

AIMING DIRECTION

WARNING DANGEROUS

1 1/2

3/32

5/32

11/32

1 3/8

4

0.1

0.125

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON—</p> <p>DECIMALS _____</p> <p>FRACTIONS _____</p> <p>ANGLES _____</p> <p>MATERIAL _____</p> <p>HEAT TREATMENT _____</p> <p>FINAL PROTECTIVE FINISH _____</p>	<p>ORIGINAL DATE OF DRAWING 2-12-64</p>	<p>DECAL, FIRING</p>	<p>R&D GROUP</p> <p>ORDNANCE CORPS</p> <p>DEPT OF THE ARMY</p> <p>U.S. ARMY ORD. ARSENAL</p> <p>FRANKFORD</p>	
	<p>DESIGNED JVF</p>			<p>CHECKED JMF</p>
	<p>TRACER</p>			<p>ENGINEER</p>
	<p>SUBMITTED</p>			<p>ENGINEER</p>
	<p>APPROVED BY ORDER OF THE CHIEF OF ORDNANCE</p>	<p>SCALE 1" = 1"</p>	<p>DRG SIZE A</p>	

Figure B-11. Decal, Firing

PHYSICAL PROPERTIES		APPLICATION		FA 32224			
YP		NEXT ASSY	USED ON	REVISIONS			
TS		FD2319/		SYM	DESCRIPTION	DATE	APPROVAL
EL 2							
RA							
BH							
RH		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

TAB, SAFETY FA 32199 ✓

RING, SAFETY FA 32225 ✓

PIN, SAFETY FA 32228 ✓

SAFETY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS _____ FRACTIONS _____ ANGLES _____ MATERIAL _____ HEAT TREATMENT _____ FINAL PROTECTIVE FINISH _____	ORIGINAL DATE OF DRAWING 2-12-62 DESIGNED J.A.V. CHECKED J.H.F. TRACER _____ CHECKER _____ ENGINEER _____ ENGINEER _____ SUBMITTED <i>[Signature]</i> APPROVED BY ORDER OF THE CHIEF OF ORDNANCE _____ ORD CORPS	SAFETY PIN ASS'Y SCALE 1:1 UNIT WT _____	R&D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. ARSENAL FRANKFORD DWS SIZE A FA32224

Figure B-12. Safety Pin, Ass'y

PHYSICAL PROPERTIES		APPLICATION		FA 32225			
YP		NEXT ASSY	USED ON	REVISIONS			
TS			FA 32224				
EL 2				SYM	DESCRIPTION	DATE	APPROVAL
RA							
BH							
RH							
		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

1.000 ± .015

.050

WIND RIGHT HAND
WIRE DIA. .045
TOTAL NO. OF COILS 1 1/2

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS ± .005 FRACTIONS — ANGLES — MATERIAL ALUMINUM HEAT TREATMENT — FINAL PROTECTIVE FINISH —	ORIGINAL DATE OF DRAWING 2-14-62 DRAFTER — TRACER — ENGINEER — SUBMITTED — APPROVED BY ORDER OF THE CHIEF OF ORDNANCE — ORN CORPS	RING, SAFETY	R&D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. ARSENAL FRANKFURT
	CHECKED — CHECKER — ENGINEER — ORN CORPS		DWG SIZE A
	FA 32225		SHEET 1 OF 1
	SCALE 2:1		

Figure B-13. Ring, Safety

GENERAL PROPERTIES		APPLICATION		FA 32223			
YP		NEXT ASSY	USED ON	REVISIONS			
TS			FA 32221				
EL 2				SYN	DESCRIPTION	DATE	APPROVAL
RA							
BN							
RH		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

GASKET MAT'L, NON-METALLIC, MIL-G-12803

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS — FRACTIONS — ANGLES — MATERIAL SEE NOTE HEAT TREATMENT FINAL PROTECTIVE FINISH		ORIGINAL DATE OF DRAWING 2-6-62 DRAFTSMAN JFF CHECKER JAF TRACER — CHECKER — ENGINEER — ENGINEER — SUBMITTED <i>[Signature]</i> APPROVED BY ORDER OF THE CHIEF OF ORDNANCE ORD CORPS		RID GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. ARSENAL WZANKFOZ DWS SEE A FA 32223 SHEET OF	
--	--	---	--	--	--

SCALE 1:1 UNIT WT

Figure B-14. Gasket

GENERAL INFORMATION		APPLICATION		FA 3222/			
TP	NEXT ASSY	USED ON	REVISIONS				
TS	FD 25/9/						
EL 2			SYN	DESCRIPTION	DATE	APPROVAL	
RA							
BN							
RN							
	DO NOT	APPLY PART NO.					
	DO	AS SPECIFIED					

GASKET, FA 32223

CAP, FA 32222

CEMENT IN PLACE
WITH MIL-C-13792(ORD)

<p><small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON—</small></p> <p>DECIMALS _____</p> <p>FRACTIONS _____</p> <p>ANGLES _____</p> <p>MATERIAL _____</p> <p>HEAT TREATMENT _____</p> <p>FINAL PROTECTIVE FINISH _____</p>	<p><small>ORIGINAL DATE OF DRAWING</small> 2-9-62</p> <p><small>DESIGNED BY</small> J.F. <small>ENGINEER</small> JMF</p> <p><small>TRACED</small> _____ <small>CHECKED</small> _____</p> <p><small>ENGINEER</small> _____ <small>ENGINEER</small> _____</p> <p><small>SUBMITTED</small> <i>O. J. Gandy</i></p> <p><small>APPROVED BY ORDER OF THE CHIEF OF ORDNANCE</small></p> <p style="text-align: right;"><small>ORD CORPS</small></p>	<p style="font-size: 1.5em;">CAP, ASS'Y</p>	<p style="text-align: center;">R&D GROUP</p> <p style="text-align: center;">ORDNANCE CORPS</p> <p style="text-align: center;"><small>DEPT OF THE ARMY U.S. ARMY ORD. ARSENAL FRANKFORD</small></p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><small>DWG SIZE</small> A</p> <p style="font-size: 1.2em; text-align: center;">FA32221</p> </div>
--	--	---	--

ARMY-ORDNANCE GENERAL CORPUS, DETROIT, MI 481-1100

Figure B-15. Cap, Ass'y

MATERIAL IDENTIFICATION		APPLICATION		FA 32222			
TP	TEST BODY	USED ON	REVISIONS				
TE		FA 32217					
EL 2			QTN	DESCRIPTION	DATE	APPROVAL	
RA							
BN							
BN							
	DO NOT	APPLY PART NO.					
	DO	AS SPECIFIED					

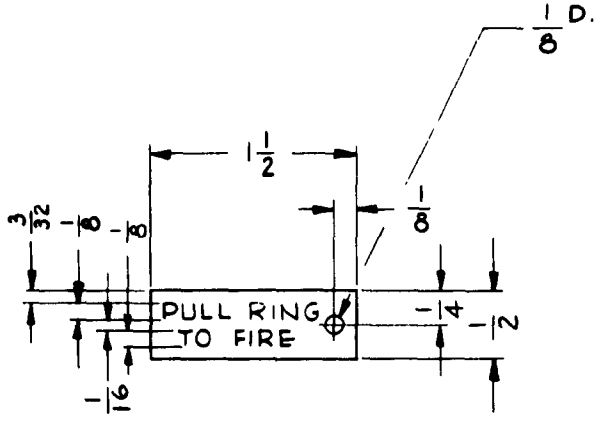
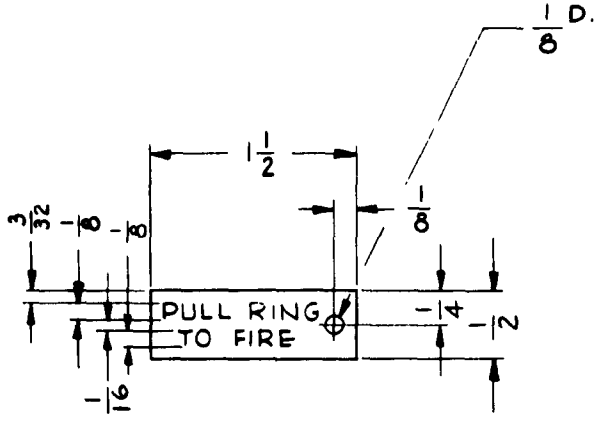
NOTE:- BREAK ALL SHARP CORNERS

FINISH 125/ ALL OVER

BEND RADIUS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS $\pm .005$ FRACTIONS $\pm 1/64$ ANGLES		ORIGINAL DATE 2-9-62 DESIGNED BY JMF TRACER CHECKER ENGINEER	CAP, END	R & D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. ARSENAL FRANKFORD
MATERIAL STEEL 1020 (OR EQUIV) HEAT TREATMENT FINAL PROTECTIVE FINISH	SUBMITTED <i>A. J. Grandy</i> ORN CORPS APPROVED BY ORDER OF THE CHIEF OF ORDNANCE ORN CORPS	SCALE 1:1 UNIT WT		DRG SIZE A FA32222

Figure B-16. Cap, End

GENERAL PROPERTIES		APPLICATION		AFA32198			
VP		NEXT ASSY	USED ON	<div style="text-align: right; margin-bottom: 10px;">1 D. $\frac{1}{8}$</div> 			
TS		AFA3218					
EL 2							
RA							
BN							
BN				<div style="text-align: right; margin-bottom: 10px;">1 D. $\frac{1}{8}$</div> 			
		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

MATERIAL: 16 GA ALUM (2024 - T3)

LETTERS, LUSTERLESS WHITE # 37886, FED STD # 595,

SPEC TT-I-558 OVER RED BACKGROUND

(BOTH SIDES)

<p><small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON-</small></p> <p>DECIMALS .0005</p> <p>FRACTIONS 1/16</p> <p>ANGLES .0005</p>	<p>ORIGINAL DATE OF DRAWING 2-9-62</p> <p>DRAWN BY JFV CHECKED JMF</p>	<p>TAB, FIRING</p>	<p>R & D GROUP</p> <p>ORDNANCE CORPS</p> <p>DEPT OF THE ARMY</p> <p>U.S. ARMY ORD. ARSENAL</p> <p>FRANKFORD</p>	
	<p>TRACER</p> <p>ENGINEER</p>			<p>CHECKED</p> <p>ENGINEER</p>
	<p>SUBMITTED A. J. Grandy</p> <p>ORD CORPS</p>			
	<p>APPROVED BY ORDER OF THE CHIEF OF ORDNANCE</p> <p>ORD CORPS</p>			
<p>MATERIAL 16 GA ALUM.</p> <p>HEAT TREATMENT</p> <p>FINAL PROTECTIVE FINISH</p>		<p>SCALE 1:1</p> <p>UNIT WT</p>		

DWG SIZE	AFA32198
A	SHEET 1 OF 1

Figure B-17. Tab, Firing

PHYSICAL PROPERTIES		APPLICATION		FA 32217			
YP		NEXT ASSY	USED ON	REVISIONS			
TS		FA 53786		BYN	DESCRIPTION	DATE	APPROVAL
EL 2							
RA							
BN							
RH		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

4

$\frac{1}{2}$ MAINTAIN AT ASS'Y

CAP, FB53757

SILVER BRAZE
IN ACCORDANCE WITH MIL-5-7883

HOLDER, FB53759

SOURCE : AMERICAN CHAIN & CABLE CO.
AUTOMOTIVE & AIRCRAFT DIVISION
ADRAIN, MICH OR EQUIVALENT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON—		ORIGINAL DATE OF DRAWING 2-9-62		CAP & HOLDER ASS'Y		R&D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. ARSENAL FRANKFORD	
DECIMALS		DRAWN J.V.F.	CHECKED J.W.F.				
FRACTIONS		TRACER	CHECKER				
ANGLES		ENGINEER	ENGINEER				
MATERIAL		SUBMITTED <i>A. J. Green</i> ORD CORPS		FA32217		A	
HEAT TREATMENT		APPROVED BY ORDER OF THE CHIEF OF ORDNANCE					
FINAL PROTECTIVE FINISH		ORD CORPS					

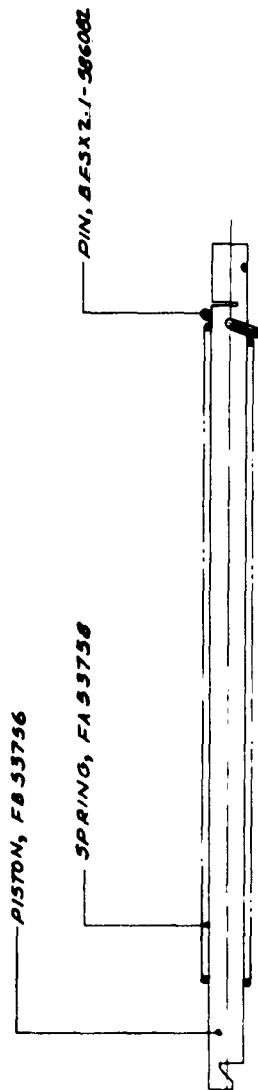
SCALE 1:1

UNIT WT

ARMY-NAVY AIR FORCE, GPO: 1962 O-57-1109

Figure B-18. Cap & Holder Ass'y

11750-0



GENERAL PRESENTATION		TOLERANCES ON DIMENSIONS		DATE		R1D GROUP	
1		1		1		1	
2		2		2		2	
3		3		3		3	
4		4		4		4	
5		5		5		5	
6		6		6		6	
7		7		7		7	
8		8		8		8	
9		9		9		9	
10		10		10		10	
11		11		11		11	
12		12		12		12	
13		13		13		13	
14		14		14		14	
15		15		15		15	
16		16		16		16	
17		17		17		17	
18		18		18		18	
19		19		19		19	
20		20		20		20	
21		21		21		21	
22		22		22		22	
23		23		23		23	
24		24		24		24	
25		25		25		25	
26		26		26		26	
27		27		27		27	
28		28		28		28	
29		29		29		29	
30		30		30		30	
31		31		31		31	
32		32		32		32	
33		33		33		33	
34		34		34		34	
35		35		35		35	
36		36		36		36	
37		37		37		37	
38		38		38		38	
39		39		39		39	
40		40		40		40	
41		41		41		41	
42		42		42		42	
43		43		43		43	
44		44		44		44	
45		45		45		45	
46		46		46		46	
47		47		47		47	
48		48		48		48	
49		49		49		49	
50		50		50		50	
51		51		51		51	
52		52		52		52	
53		53		53		53	
54		54		54		54	
55		55		55		55	
56		56		56		56	
57		57		57		57	
58		58		58		58	
59		59		59		59	
60		60		60		60	
61		61		61		61	
62		62		62		62	
63		63		63		63	
64		64		64		64	
65		65		65		65	
66		66		66		66	
67		67		67		67	
68		68		68		68	
69		69		69		69	
70		70		70		70	
71		71		71		71	
72		72		72		72	
73		73		73		73	
74		74		74		74	
75		75		75		75	
76		76		76		76	
77		77		77		77	
78		78		78		78	
79		79		79		79	
80		80		80		80	
81		81		81		81	
82		82		82		82	
83		83		83		83	
84		84		84		84	
85		85		85		85	
86		86		86		86	
87		87		87		87	
88		88		88		88	
89		89		89		89	
90		90		90		90	
91		91		91		91	
92		92		92		92	
93		93		93		93	
94		94		94		94	
95		95		95		95	
96		96		96		96	
97		97		97		97	
98		98		98		98	
99		99		99		99	
100		100		100		100	
101		101		101		101	
102		102		102		102	
103		103		103		103	
104		104		104		104	
105		105		105		105	
106		106		106		106	
107		107		107		107	
108		108		108		108	
109		109		109		109	
110		110		110		110	
111		111		111		111	
112		112		112		112	
113		113		113		113	
114		114		114		114	
115		115		115		115	
116		116		116		116	
117		117		117		117	
118		118		118		118	
119		119		119		119	
120		120		120		120	
121		121		121		121	
122		122		122		122	
123		123		123		123	
124		124		124		124	
125		125		125		125	
126		126		126		126	
127		127		127		127	
128		128		128		128	
129		129		129		129	
130		130		130		130	
131		131		131		131	
132		132		132		132	
133		133		133		133	
134		134		134		134	
135		135		135		135	
136		136		136		136	
137		137		137		137	
138		138		138		138	
139		139		139		139	
140		140		140		140	
141		141		141		141	
142		142		142		142	
143		143		143		143	
144		144		144		144	
145		145		145		145	
146		146		146		146	
147		147		147		147	
148		148		148		148	
149		149		149		149	
150		150		150		150	
151		151		151		151	
152		152		152		152	
153		153		153		153	
154		154		154		154	
155		155		155		155	
156		156		156		156	
157		157		157		157	
158		158		158		158	
159		159		159		159	
160		160		160		160	
161		161		161		161	
162		162		162		162	
163		163		163		163	
164		164		164		164	
165		165		165		165	
166		166		166		166	
167		167		167		167	
168		168		168		168	
169		169		169		169	
170		170		170		170	
171		171		171		171	
172		172		172		172	
173		173		173		173	
174		174		174		174	
175		175		175		175	
176		176		176		176	
177		177		177		177	
178		178		178		178	
179		179		179		179	
180		180		180		180	
181		181		181		181	
182		182		182		182	
183		183		183		183	
184		184		184		184	
185		185		185		185	
186		186		186		186	
187		187		187		187	
188		188		188		188	
189		189		189		189	
190		190		190		190	
191		191		191		191	
192		192		192		192	
193		193		193		193	
194		194		194		194	
195		195		195		195	
196		196		196		196	
197		197		197		197	
198		198		198		198	
199		199		199		199</	

Figure B-20. Wire Gun Belt Ass'y

11700-3

		<p>FINISH 125/ALL OVER</p> <p>NOTE: BREAK ALL SHARP CORNERS</p>		<p>ORIGINAL DATE 2-9-62</p> <p>BY JMF</p> <p>REVISIONS</p> <p>DATE</p> <p>APPROVAL</p>	
<p>1. FB 53780 FB 32.217</p> <p>2. FB 53780 FB 32.217</p> <p>3. FB 53780 FB 32.217</p> <p>4. FB 53780 FB 32.217</p> <p>5. FB 53780 FB 32.217</p> <p>6. FB 53780 FB 32.217</p> <p>7. FB 53780 FB 32.217</p> <p>8. FB 53780 FB 32.217</p> <p>9. FB 53780 FB 32.217</p> <p>10. FB 53780 FB 32.217</p> <p>11. FB 53780 FB 32.217</p> <p>12. FB 53780 FB 32.217</p> <p>13. FB 53780 FB 32.217</p> <p>14. FB 53780 FB 32.217</p> <p>15. FB 53780 FB 32.217</p> <p>16. FB 53780 FB 32.217</p> <p>17. FB 53780 FB 32.217</p> <p>18. FB 53780 FB 32.217</p> <p>19. FB 53780 FB 32.217</p> <p>20. FB 53780 FB 32.217</p> <p>21. FB 53780 FB 32.217</p> <p>22. FB 53780 FB 32.217</p> <p>23. FB 53780 FB 32.217</p> <p>24. FB 53780 FB 32.217</p> <p>25. FB 53780 FB 32.217</p> <p>26. FB 53780 FB 32.217</p> <p>27. FB 53780 FB 32.217</p> <p>28. FB 53780 FB 32.217</p> <p>29. FB 53780 FB 32.217</p> <p>30. FB 53780 FB 32.217</p> <p>31. FB 53780 FB 32.217</p> <p>32. FB 53780 FB 32.217</p> <p>33. FB 53780 FB 32.217</p> <p>34. FB 53780 FB 32.217</p> <p>35. FB 53780 FB 32.217</p> <p>36. FB 53780 FB 32.217</p> <p>37. FB 53780 FB 32.217</p> <p>38. FB 53780 FB 32.217</p> <p>39. FB 53780 FB 32.217</p> <p>40. FB 53780 FB 32.217</p> <p>41. FB 53780 FB 32.217</p> <p>42. FB 53780 FB 32.217</p> <p>43. FB 53780 FB 32.217</p> <p>44. FB 53780 FB 32.217</p> <p>45. FB 53780 FB 32.217</p> <p>46. FB 53780 FB 32.217</p> <p>47. FB 53780 FB 32.217</p> <p>48. FB 53780 FB 32.217</p> <p>49. FB 53780 FB 32.217</p> <p>50. FB 53780 FB 32.217</p> <p>51. FB 53780 FB 32.217</p> <p>52. FB 53780 FB 32.217</p> <p>53. FB 53780 FB 32.217</p> <p>54. FB 53780 FB 32.217</p> <p>55. FB 53780 FB 32.217</p> <p>56. FB 53780 FB 32.217</p> <p>57. FB 53780 FB 32.217</p> <p>58. FB 53780 FB 32.217</p> <p>59. FB 53780 FB 32.217</p> <p>60. FB 53780 FB 32.217</p> <p>61. FB 53780 FB 32.217</p> <p>62. FB 53780 FB 32.217</p> <p>63. FB 53780 FB 32.217</p> <p>64. FB 53780 FB 32.217</p> <p>65. FB 53780 FB 32.217</p> <p>66. FB 53780 FB 32.217</p> <p>67. FB 53780 FB 32.217</p> <p>68. FB 53780 FB 32.217</p> <p>69. FB 53780 FB 32.217</p> <p>70. FB 53780 FB 32.217</p> <p>71. FB 53780 FB 32.217</p> <p>72. FB 53780 FB 32.217</p> <p>73. FB 53780 FB 32.217</p> <p>74. FB 53780 FB 32.217</p> <p>75. FB 53780 FB 32.217</p> <p>76. FB 53780 FB 32.217</p> <p>77. FB 53780 FB 32.217</p> <p>78. FB 53780 FB 32.217</p> <p>79. FB 53780 FB 32.217</p> <p>80. FB 53780 FB 32.217</p> <p>81. FB 53780 FB 32.217</p> <p>82. FB 53780 FB 32.217</p> <p>83. FB 53780 FB 32.217</p> <p>84. FB 53780 FB 32.217</p> <p>85. FB 53780 FB 32.217</p> <p>86. FB 53780 FB 32.217</p> <p>87. FB 53780 FB 32.217</p> <p>88. FB 53780 FB 32.217</p> <p>89. FB 53780 FB 32.217</p> <p>90. FB 53780 FB 32.217</p> <p>91. FB 53780 FB 32.217</p> <p>92. FB 53780 FB 32.217</p> <p>93. FB 53780 FB 32.217</p> <p>94. FB 53780 FB 32.217</p> <p>95. FB 53780 FB 32.217</p> <p>96. FB 53780 FB 32.217</p> <p>97. FB 53780 FB 32.217</p> <p>98. FB 53780 FB 32.217</p> <p>99. FB 53780 FB 32.217</p> <p>100. FB 53780 FB 32.217</p>		<p>SCALE 1:1</p> <p>UNIT WT. 500 GR.</p>		<p>ORDNANCE CORPS</p> <p>DEPT OF THE ARMY</p> <p>U.S. ARMY ORDNANCE</p> <p>HEADQUARTERS</p> <p>FB 53780</p>	

Figure B-22. Tube

Figure B-23. Tube & Sear Ass'y

SOURCE AMERICAN CHAIN AND CABLE CO.
AUTOMOTIVE AND AIRCRAFT DIVISION
ADRAIN, MICH OR EQUIVALENT.

[illegible]

Figure B-24. Coil Ass'y

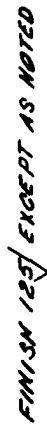


Figure B-25. Piston

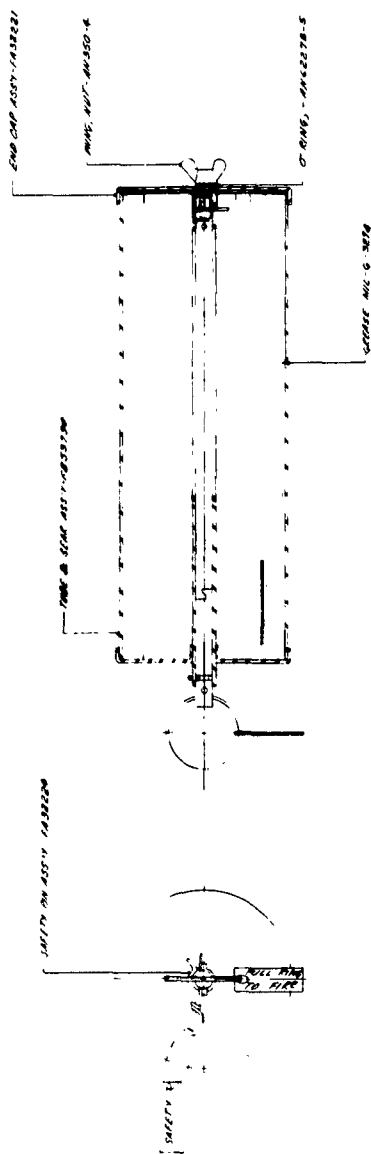
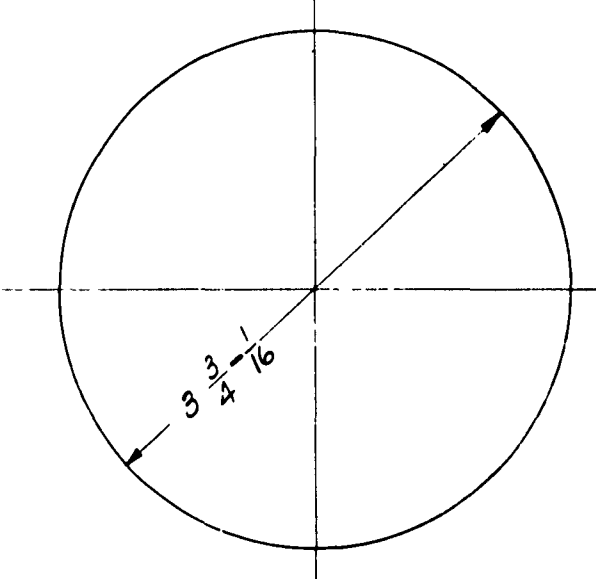
[illegible]

Figure B-28. Gun, Wire, XM Ass'y

APPENDIX C

PACKAGING DETAILS

PHYSICAL PROPERTIES		APPLICATION		FA 32311			
YP	TS	NEXT ASSY	USED ON	REVISIONS			
			FC 11329				
EL 2				SYN	DESCRIPTION	DATE	APPROVAL
RA							
BH							
RH							
		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				



MATERIAL: 1/8 THICK SOLID FIBERBOARD
 OR COMMERCIAL CHIPBOARD
SOURCE: WHITEMARSH CONVERTERS INC.
 COTTMAN ST. AND HASBROOK AV.
 PHILADELPHIA 11, PA. OR EQUIVALENT.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON— DECIMALS — FRACTIONS — ANGLES —	ORIGINAL DATE OF DRAWING 16 FEB 62 DESIGNED JTF CHECKED JTF TRACED CHECKED ENGINEER ENGINEER SUBMITTED <i>[Signature]</i> APPROVED BY ORDER OF THE CHIEF OF ORDNANCE ORN CORPS	FILLER	R&D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. ARS. FRANKFORD DWG NO FA 32311 A
MATERIAL SEE NOTE HEAT TREATMENT FINAL PROTECTIVE FINISH			

Figure C-1. Filler

PHYSICAL PROPERTIES		APPLICATION		FA 32312			
YP		NEXT ASSY	USED ON	REVISIONS			
TS			FC11329				
EL 2				SYN	DESCRIPTION	DATE	APPROVAL
RA							
BH							
BH							
		DO NOT	APPLY PART NO.				
		DO	AS SPECIFIED				

NOTE -
MATERIAL - CUSHIONING MATERIAL, BOND
FIBER MIL - C - 7769

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON -</p> <p>DECIMALS —</p> <p>FRACTIONS —</p> <p>ANGLES —</p> <p>MATERIAL <i>SEE NOTE</i></p> <p>HEAT TREATMENT —</p> <p>FINAL PROTECTIVE FINISH —</p>	<p>ORIGINAL DATE OF DRAWING <i>19 Feb 62</i></p> <p>DRAWN BY <i>JAP</i> CHECKED <i>JAL</i></p> <p>TRACER — CHECKER —</p> <p>ENGINEER — ENGINEER —</p> <p>SUBMITTED <i>O. J. Garcia</i> ORD CORPS</p> <p>APPROVED BY ORDER OF THE CHIEF OF ORDNANCE</p> <p style="text-align: right;">ORD CORPS</p>	<p style="font-size: 1.5em;">CUSHION BOND</p> <p>SCALE <i>1:1</i></p>	<p style="text-align: right;">R & D GROUP</p> <p style="text-align: center;">ORDNANCE CORPS DEPT OF THE ARMY US ARMY HEADQUARTERS WASHINGTON, D.C.</p> <p style="text-align: right;">DWG SIZE A</p> <p style="text-align: right; font-size: 1.2em;">FA 32312</p> <p style="text-align: right;">SHEET <i>1</i> OF <i>1</i></p>
--	--	---	--

Figure C-2. Cushion Bond

NOTICE. - When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have furnished, furnished, or in any way supplied the said drawings, specifications or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

PHYSICAL PROPERTIES		DO NOT DO	APPLY PART NO. AS SPECIFIED	REVISIONS			
YP		APPLICATION		SIZE	DESCRIPTION	DATE	APPROVAL
TS		NEXT ASSY	USED ON				
ELS			FB53742				
RA							
BM							
RM							

48.

9 1/16

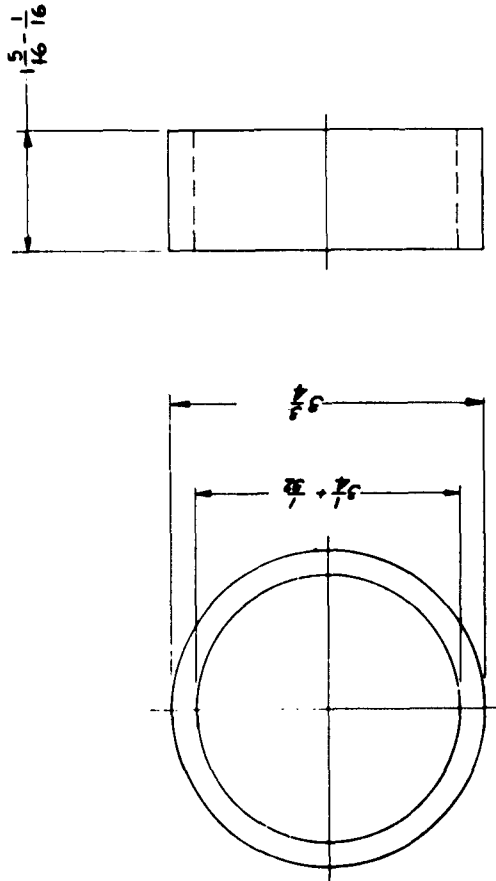
MELT BOTH ENDS WITH HEATING ELEMENT FOR DESIRED LENGTH.

UNLESS OTHERWISE SPECIFIED	ORIGINAL DATE OF DRAWING	WEB, GUN, WIRE	R1D GROUP ORDNANCE CORPS DEPT OF THE ARMY U.S. ARMY ORD. FRANKFORD
DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES	DATE OF DRAWING		
5/16	DATE OF DRAWING		
MATERIAL N12-W-5625D COLOR O.D. NYLON	DATE OF DRAWING		
HEAT TREATMENT	SUBMITTED	SCALE 1:1	FA32313
FINAL PROTECTIVE FINISH	APPROVED BY ORDER OF THE CHIEF OF ORDNANCE	UNIT WT	SHEET 1 of 1

DD FORM 1 APR 64

REPLACES ARMY-NAVY STANDARD DRAWING, 6-67000-1, 12-15-14

Figure C-3. Web, Gun, Wire

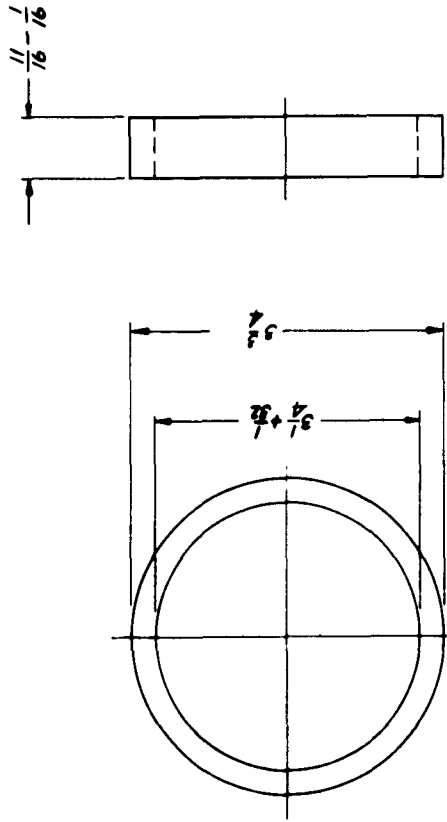


SOURCE : PHILADELPHIA CONTAINER CO.
SWANSON ST. AND OREGON AV.
PHILADELPHIA, PA. OR EQUIVALENT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100										
SOURCE: PHILADELPHIA CONTAINER CO. SWANSON ST. AND OREGON AV. PHILADELPHIA, PA. OR EQUIVALENT										1. NAME: ORDNANCE CORPS 2. ADDRESS: DEPT OF THE ARMY 3. CITY: WASHINGTON 4. STATE: D.C. 5. ZIP: 20315 6. PHONE: 203-1511 7. FAX: 203-1511 8. E-MAIL: ORDNANCE CORPS 9. WEBSITE: ORDNANCE CORPS 10. OTHER: ORDNANCE CORPS										11. NAME: ORDNANCE CORPS 12. ADDRESS: DEPT OF THE ARMY 13. CITY: WASHINGTON 14. STATE: D.C. 15. ZIP: 20315 16. PHONE: 203-1511 17. FAX: 203-1511 18. E-MAIL: ORDNANCE CORPS 19. WEBSITE: ORDNANCE CORPS 20. OTHER: ORDNANCE CORPS										21. NAME: ORDNANCE CORPS 22. ADDRESS: DEPT OF THE ARMY 23. CITY: WASHINGTON 24. STATE: D.C. 25. ZIP: 20315 26. PHONE: 203-1511 27. FAX: 203-1511 28. E-MAIL: ORDNANCE CORPS 29. WEBSITE: ORDNANCE CORPS 30. OTHER: ORDNANCE CORPS										31. NAME: ORDNANCE CORPS 32. ADDRESS: DEPT OF THE ARMY 33. CITY: WASHINGTON 34. STATE: D.C. 35. ZIP: 20315 36. PHONE: 203-1511 37. FAX: 203-1511 38. E-MAIL: ORDNANCE CORPS 39. WEBSITE: ORDNANCE CORPS 40. OTHER: ORDNANCE CORPS										41. NAME: ORDNANCE CORPS 42. ADDRESS: DEPT OF THE ARMY 43. CITY: WASHINGTON 44. STATE: D.C. 45. ZIP: 20315 46. PHONE: 203-1511 47. FAX: 203-1511 48. E-MAIL: ORDNANCE CORPS 49. WEBSITE: ORDNANCE CORPS 50. OTHER: ORDNANCE CORPS										51. NAME: ORDNANCE CORPS 52. ADDRESS: DEPT OF THE ARMY 53. CITY: WASHINGTON 54. STATE: D.C. 55. ZIP: 20315 56. PHONE: 203-1511 57. FAX: 203-1511 58. E-MAIL: ORDNANCE CORPS 59. WEBSITE: ORDNANCE CORPS 60. OTHER: ORDNANCE CORPS										61. NAME: ORDNANCE CORPS 62. ADDRESS: DEPT OF THE ARMY 63. CITY: WASHINGTON 64. STATE: D.C. 65. ZIP: 20315 66. PHONE: 203-1511 67. FAX: 203-1511 68. E-MAIL: ORDNANCE CORPS 69. WEBSITE: ORDNANCE CORPS 70. OTHER: ORDNANCE CORPS										71. NAME: ORDNANCE CORPS 72. ADDRESS: DEPT OF THE ARMY 73. CITY: WASHINGTON 74. STATE: D.C. 75. ZIP: 20315 76. PHONE: 203-1511 77. FAX: 203-1511 78. E-MAIL: ORDNANCE CORPS 79. WEBSITE: ORDNANCE CORPS 80. OTHER: ORDNANCE CORPS										81. NAME: ORDNANCE CORPS 82. ADDRESS: DEPT OF THE ARMY 83. CITY: WASHINGTON 84. STATE: D.C. 85. ZIP: 20315 86. PHONE: 203-1511 87. FAX: 203-1511 88. E-MAIL: ORDNANCE CORPS 89. WEBSITE: ORDNANCE CORPS 90. OTHER: ORDNANCE CORPS										91. NAME: ORDNANCE CORPS 92. ADDRESS: DEPT OF THE ARMY 93. CITY: WASHINGTON 94. STATE: D.C. 95. ZIP: 20315 96. PHONE: 203-1511 97. FAX: 203-1511 98. E-MAIL: ORDNANCE CORPS 99. WEBSITE: ORDNANCE CORPS 100. OTHER: ORDNANCE CORPS									

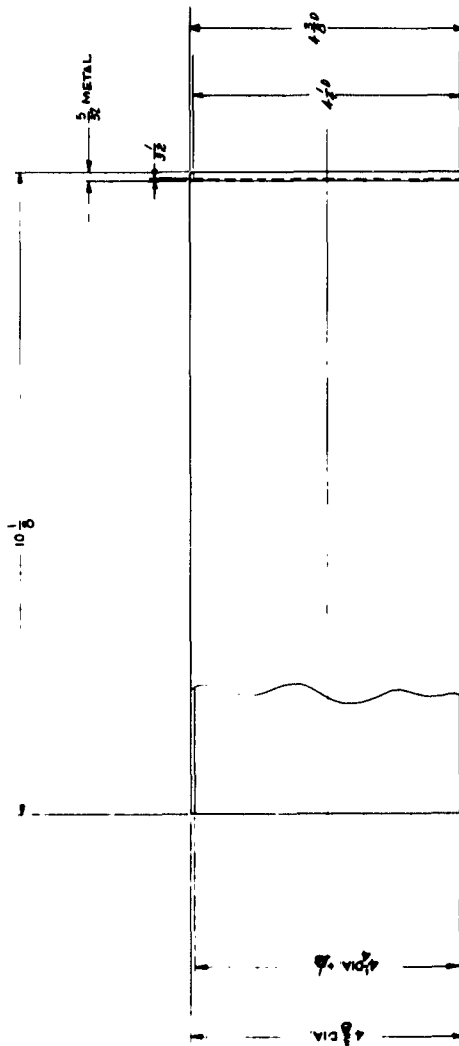
Figure C-4. Tube, Chipboard, Rear

DAF 11760



SOURCE : PHILADELPHIA CONTAINER CO.
SWANSON ST. AND OREGON AV.
PHILADELPHIA, PA OR EQUIVALENT

APPROVAL		DATE		REVISIONS		DATE		APPROVAL	
1		16 FEB 62		1		1		1	
2		16 FEB 62		2		2		2	
3		16 FEB 62		3		3		3	
4		16 FEB 62		4		4		4	
5		16 FEB 62		5		5		5	
6		16 FEB 62		6		6		6	
7		16 FEB 62		7		7		7	
8		16 FEB 62		8		8		8	
9		16 FEB 62		9		9		9	
10		16 FEB 62		10		10		10	
11		16 FEB 62		11		11		11	
12		16 FEB 62		12		12		12	
13		16 FEB 62		13		13		13	
14		16 FEB 62		14		14		14	
15		16 FEB 62		15		15		15	
16		16 FEB 62		16		16		16	
17		16 FEB 62		17		17		17	
18		16 FEB 62		18		18		18	
19		16 FEB 62		19		19		19	
20		16 FEB 62		20		20		20	
21		16 FEB 62		21		21		21	
22		16 FEB 62		22		22		22	
23		16 FEB 62		23		23		23	
24		16 FEB 62		24		24		24	
25		16 FEB 62		25		25		25	
26		16 FEB 62		26		26		26	
27		16 FEB 62		27		27		27	
28		16 FEB 62		28		28		28	
29		16 FEB 62		29		29		29	
30		16 FEB 62		30		30		30	
31		16 FEB 62		31		31		31	
32		16 FEB 62		32		32		32	
33		16 FEB 62		33		33		33	
34		16 FEB 62		34		34		34	
35		16 FEB 62		35		35		35	
36		16 FEB 62		36		36		36	
37		16 FEB 62		37		37		37	
38		16 FEB 62		38		38		38	
39		16 FEB 62		39		39		39	
40		16 FEB 62		40		40		40	
41		16 FEB 62		41		41		41	
42		16 FEB 62		42		42		42	
43		16 FEB 62		43		43		43	
44		16 FEB 62		44		44		44	
45		16 FEB 62		45		45		45	
46		16 FEB 62		46		46		46	
47		16 FEB 62		47		47		47	
48		16 FEB 62		48		48		48	
49		16 FEB 62		49		49		49	
50		16 FEB 62		50		50		50	
51		16 FEB 62		51		51		51	
52		16 FEB 62		52		52		52	
53		16 FEB 62		53		53		53	
54		16 FEB 62		54		54		54	
55		16 FEB 62		55		55		55	
56		16 FEB 62		56		56		56	
57		16 FEB 62		57		57		57	
58		16 FEB 62		58		58		58	
59		16 FEB 62		59		59		59	
60		16 FEB 62		60		60		60	
61		16 FEB 62		61		61		61	
62		16 FEB 62		62		62		62	
63		16 FEB 62		63		63		63	
64		16 FEB 62		64		64		64	
65		16 FEB 62		65		65		65	
66		16 FEB 62		66		66		66	
67		16 FEB 62		67		67		67	
68		16 FEB 62		68		68		68	
69		16 FEB 62		69		69		69	
70		16 FEB 62		70		70		70	
71		16 FEB 62		71		71		71	
72		16 FEB 62		72		72		72	
73		16 FEB 62		73		73		73	
74		16 FEB 62		74		74		74	
75		16 FEB 62		75		75		75	
76		16 FEB 62		76		76		76	
77		16 FEB 62		77		77		77	
78		16 FEB 62		78		78		78	
79		16 FEB 62		79		79		79	
80		16 FEB 62		80		80		80	
81		16 FEB 62		81		81		81	
82		16 FEB 62		82		82		82	
83		16 FEB 62		83		83		83	
84		16 FEB 62		84		84		84	
85		16 FEB 62		85		85		85	
86		16 FEB 62		86		86		86	
87		16 FEB 62		87		87		87	
88		16 FEB 62		88		88		88	
89		16 FEB 62		89		89		89	
90		16 FEB 62		90		90		90	
91		16 FEB 62		91		91		91	
92		16 FEB 62		92		92		92	
93		16 FEB 62		93		93		93	
94		16 FEB 62		94		94		94	
95		16 FEB 62		95		95		95	
96		16 FEB 62		96		96		96	
97		16 FEB 62		97		97		97	
98		16 FEB 62		98		98		98	
99		16 FEB 62		99		99		99	
100		16 FEB 62		100		100		100	
101		16 FEB 62		101		101		101	
102		16 FEB 62		102		102		102	
103		16 FEB 62		103		103		103	
104		16 FEB 62		104		104		104	
105		16 FEB 62		105		105		105	
106		16 FEB 62		106		106		106	
107		16 FEB 62		107		107		107	
108		16 FEB 62		108		108		108	
109		16 FEB 62		109		109		109	
110		16 FEB 62		110		110		110	
111		16 FEB 62		111		111		111	
112		16 FEB 62		112		112		112	
113		16 FEB 62		113		113		113	
114		16 FEB 62		114		114		114	
115		16 FEB 62		115		115		115	
116		16 FEB 62		116		116		116	
117		16 FEB 62		117		117		117	
118		16 FEB 62		118		118		118	
119		16 FEB 62		119		119		119	
120		16 FEB 62		120		120		120	
121		16 FEB 62		121		121		121	
122		16 FEB 62		122		122		122	
123		16 FEB 62		123		123		123	
124		16 FEB 62		124		124		124	
125		16 FEB 62		125		125		125	
126		16 FEB 62		126		126		126	
127		16 FEB 62		127		127		127	
128		16 FEB 62		128		128		128	
129		16 FEB 62		129		129		129	
130		16 FEB 62		130		130		130	
131		16 FEB 62		131		131		131	
132		16 FEB 62		132		132		132	
133		16 FEB 62		133		133		133	
134		16 FEB 62		134		134		134	
135		16 FEB 62		135		135		135	
136		16 FEB 62		136		136		136	
137		16 FEB 62		137		137		137	
138		16 FEB 62		138		138		138	
139		16 FEB 62		139		139		139	
140		16 FEB 62		140		140		140	
141		16 FEB 62		141		141		141	
142		16 FEB 62		142		142		142	
143		16 FEB 62		143		143		143	
144		16 FEB 62		144		144		144	
145		16 FEB 62		145		145		145	
146		16 FEB 62		146		146		146	
147		16 FEB 62		147		147		147	
148		16 FEB 62		148		148		148	
149		16 FEB 62		149		149		149	
150		16 FEB 62		150		150		150	
151		16 FEB 62		151		151		151	
152		16 FEB 62		152		152		152	
153		16 FEB 62		153		153		153	
154		16 FEB 62		154		154		154	
155		16 FEB 62		155		155		155	
156		16 FEB 62		156		156		156	
157		16 FEB 62		157		157		157	
158		16 FEB 62		158		158		158	
159		16 FEB 62		159		159		159	
160		16 FEB 62		160		160		160	
161		16 FEB 62		161		161		161	
162		16 FEB 62		162		162		162	
163		16 FEB 62		163		163		163	
164		16 FEB 62		164		164		164	
165		16 FEB 62		165		165		165	
166		16 FEB 62		166		166		166	
167		16 FEB 62		167		167		167	
168		16 FEB 62		168		168		168	
169		16 FEB 62		169		169		169	
170		16 FEB 62		170		170		170	
171		16 FEB 62		171		171		171	
172		16 FEB 62		172		172		172	
173		16 FEB 62		173		173		173	
174		16 FEB 62		174		174		174	
175		16 FEB 62		175		175		175	
176		16 FEB 62		176		176		176	
177		16 FEB 62		177		177		177	
178		16 FEB 62		178		178		178	
179		16 FEB 62		179		17			



Source: PHILADELPHIA CONTAINER CO
SWANSON ST AND OREGON AV
PHILA, PA OR EQUIVALENT

[illegible]

Figure C-6. Tube

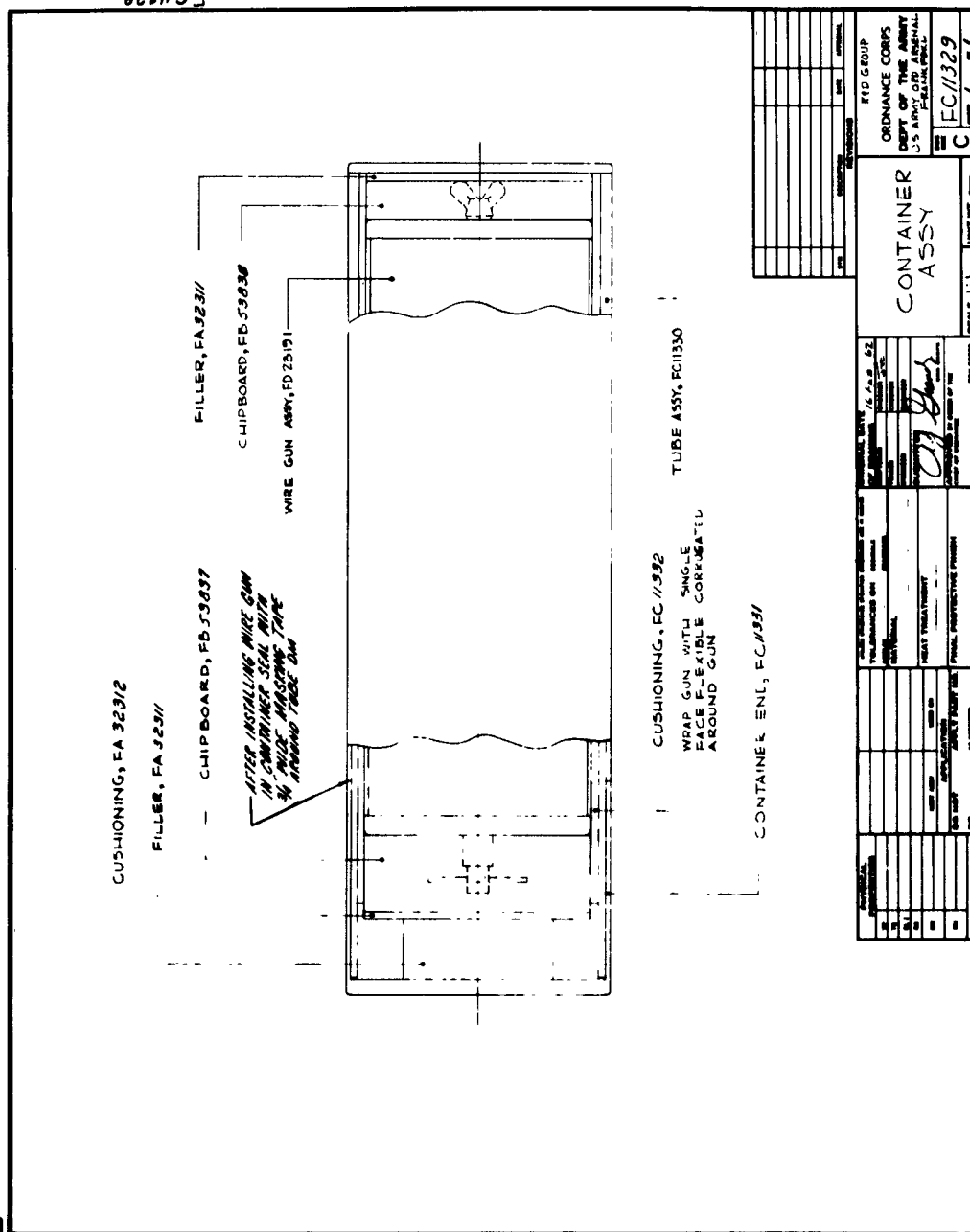


Figure C-7. Container Ass'y

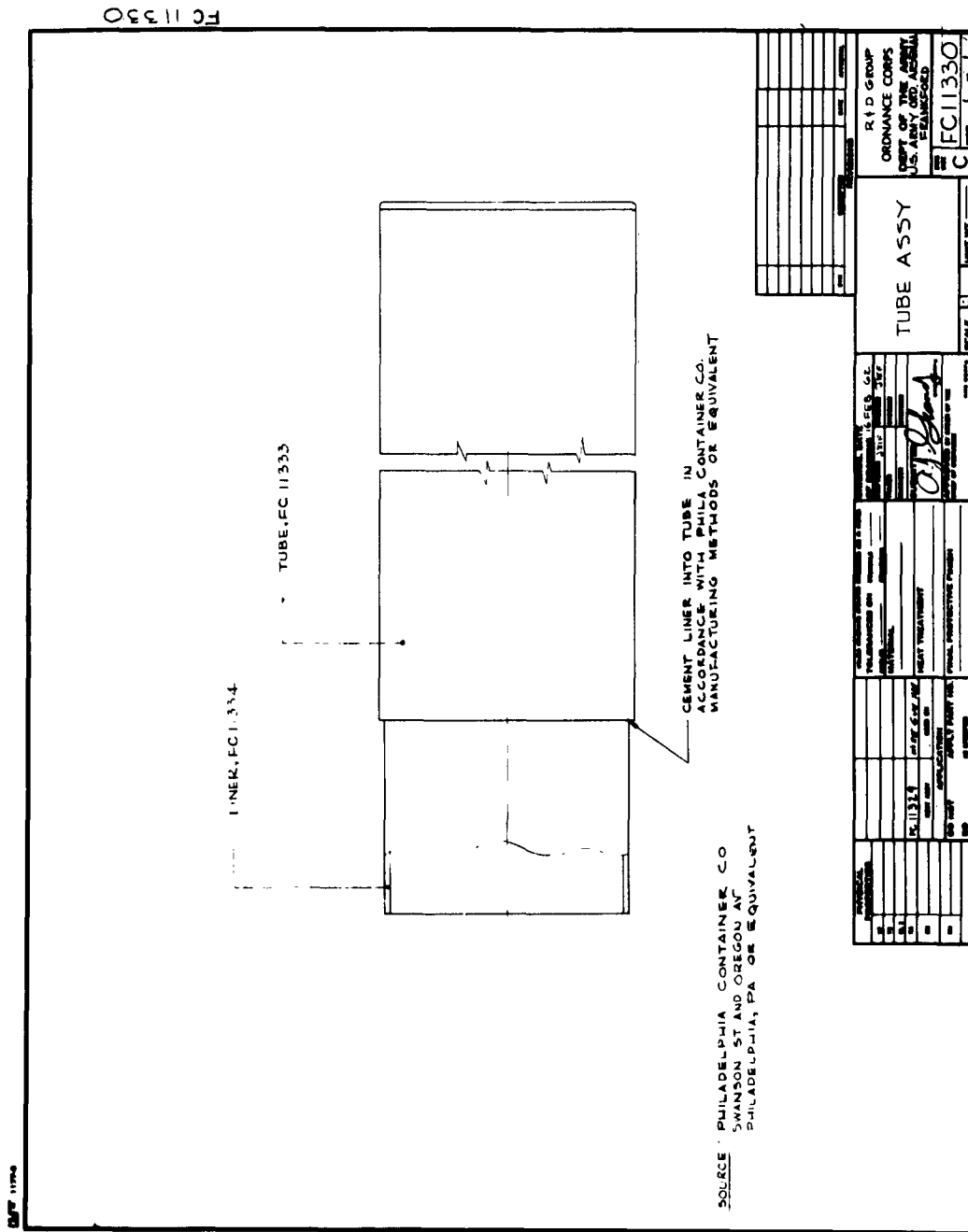


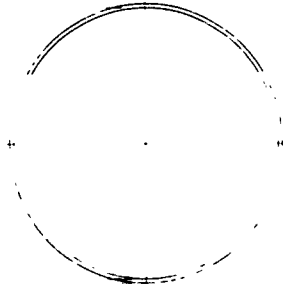
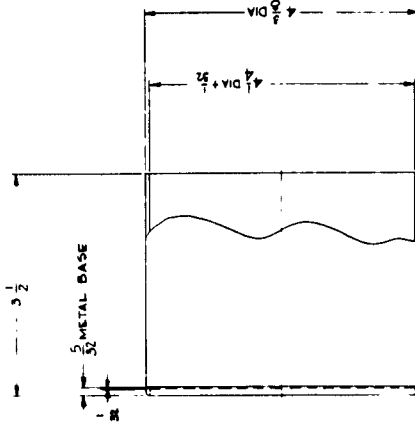
Figure C-8. Tube Ass'y

Figure C-9. Cushion, Wrapping

10/17/1943

FC11331

4 3/8 METAL BASE
4 1/4

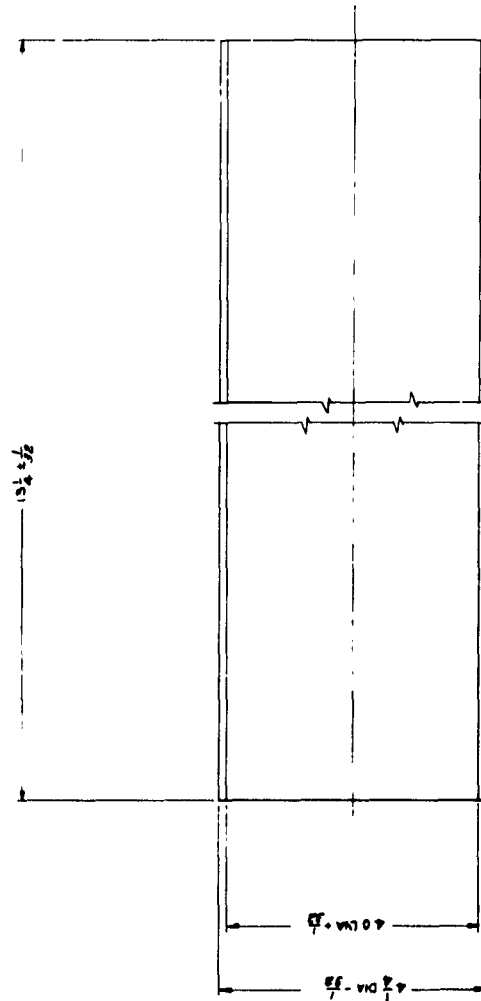


SOURCE PHILADELPHIA CONTAINER CO
SWANSON ST AND OREGON AV
PHILADELPHIA, PA OR EQUIVALENT

1. IDENTIFICATION 2. SPECIFICATION 3. QUANTITY 4. DATE 5. DRAWN BY 6. CHECKED BY 7. APPROVED BY 8. REVISIONS		9. MATERIAL 10. DIMENSIONS 11. WEIGHT 12. VOLUME 13. SURFACE AREA 14. TOLERANCES ON DIMENSIONS 15. FINISHES 16. TREATMENT 17. MARKING 18. INSPECTION 19. PACKAGING 20. STORAGE 21. SHIPMENT 22. DELIVERY		23. CONTAINER END 24. CONTAINER GROUP 25. ORDNANCE CORPS 26. DEPT OF THE ARMY 27. US ARMY CORPS 28. FC/11331 29. C	
---	--	---	--	--	--

Figure C-10. Container, End

★C1133★



NOTE: SOURCE: PHILADELPHIA CONTAINER CO.
SWANSON ST AND OREGON AVE.
PHILA., PA OR EQUIVALENT

[illegible]

Figure C-11. Tube, Liner



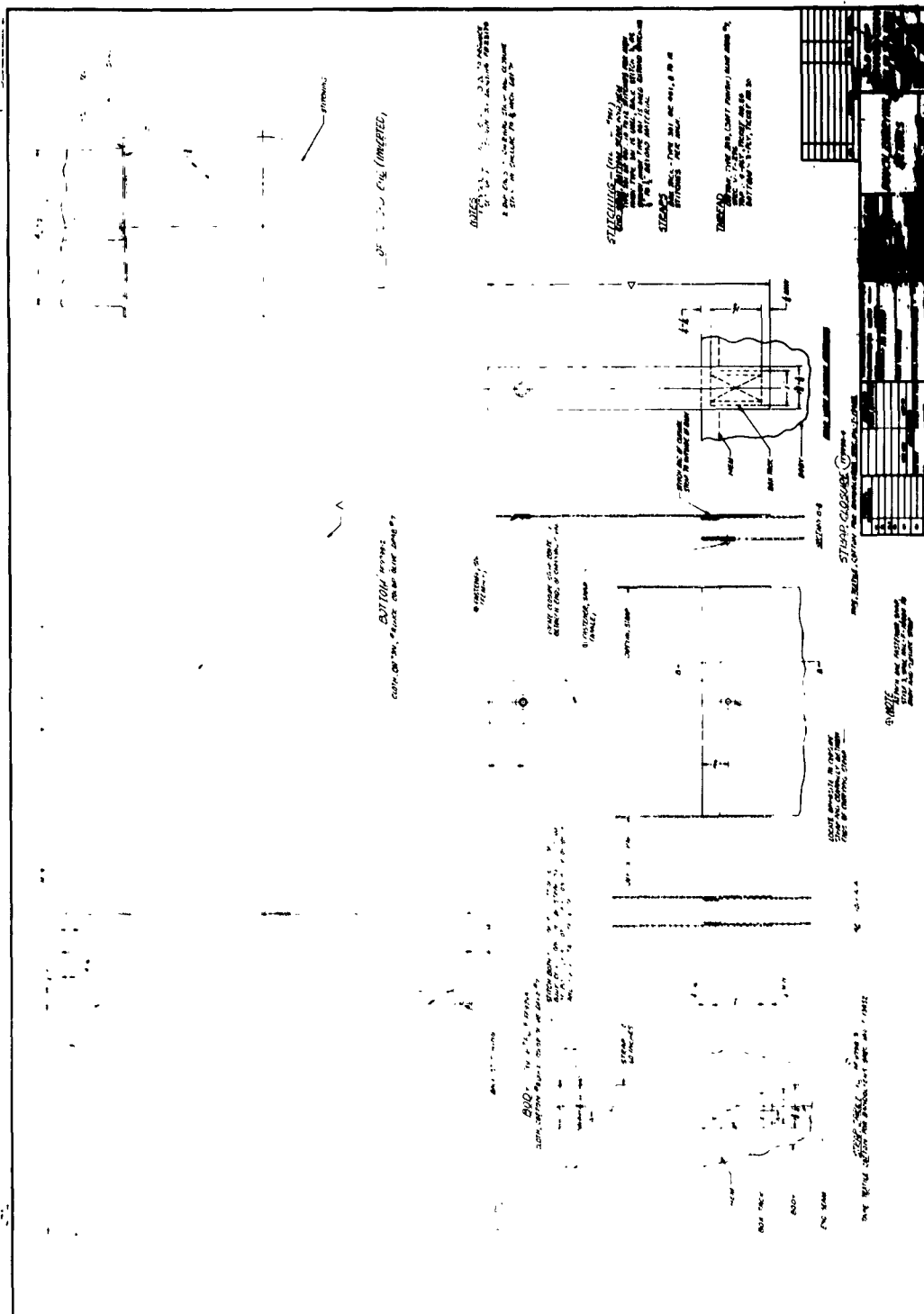


Figure C-13. Pouch, Carrying, Details

DISTRIBUTION

- | | |
|--|---|
| 1 - Chief of Ordnance
Dept of the Army
Washington 25, D. C.
Attn: ORDTS | 1 - Commanding Officer
Watervliet Arsenal
Watervliet, New York |
| 1 - Attn: ORDTB -Bal | 2 - Commanding General
Picatinny Arsenal
Dover, New Jersey
Attn: Technical Group |
| 1 - Attn: ORDTU | 1 - Attn: ORDBB-DN (NIEM) |
| 1 - Attn: ORDTW | 1 - Commanding Officer
Watertown Arsenal
Watertown 72, Mass.
Attn: Tech Info Section |
| 1 - Attn: ORDTN | 1 - Commanding Officer
Diamond Ord Fuze Labs
Washington 25, D. C.
Attn: Tech Ref Section |
| 1 - Ord Weapons Command
Rock Island, Illinois
Attn: ORDOW-TX | 1 - Commanding Officer
Detroit Arsenal
Center Line, Michigan |
| 1 - Commanding General
Aberdeen Proving Ground
Maryland
Attn: Ball Res Lab | 1 - Commander
Army Rocket & Guided
Missile Agency
Redstone Arsenal
Alabama |
| 1 - Attn: Dr. F. E. Crubbs, BRL | 1 - Commanding Officer
Army Chemical Center
Maryland
Attn: Mr. W. W. Beyth
Weapons Research Div
Chemical Warfare Lab |
| 1 - Attn: Mr. H. P. Gay, BRL | |
| 1 - Attn: Mr. C. Poor, FWSA,
BRL | |
| 1 - Attn: Develop & Proof Serv | |
| 1 - Attn: Mr. G. T. Watson, D&PS | |
| 1 - Attn: Ordnance School | |
| 1 - Commanding Officer
Springfield Armory
Springfield 1, Mass.
Attn: Engr Group | |

DISTRIBUTION (Cont'd)

- | | |
|--|---|
| 1 - Commanding General
Hq, U. S. Continental Army
Command
Fort Monroe, Virginia
Attn: ATDEV-3 | 1 - President
USA Intelligence Board
Fort Holabird
Baltimore 19, Maryland |
| 1 - President
U. S. Army Armor Board
Fort Knox, Kentucky | 1 - The President
Anti-Aircraft & Guided
Missile Board
Fort Bliss, Texas |
| 1 - President
U. S. Army Infantry Board
Fort Benning, Georgia
Attn: Director, Rocket &
Recoilless | 1 - Weapons Systems Evaluation
Group
Office, Secretary of Defense
Washington 25, D. C. |
| 1 - Commandant
U. S. Army Armor School
Fort Knox, Kentucky | 1 - Operations Research Office
John Hopkins University
Bethesda, Maryland |
| 1 - Commandant
U. S. Army Artillery &
Missile School
Fort Sill, Oklahoma
Attn: Chf, Combat Develop
Dept | 10 - Armed Services Technical
Information Agency
Arlington Hall Station
Arlington 12, Virginia
Attn: TIPDR (Code 4) |
| 1 - Commandant
U. S. Army Infantry School
Fort Benning, Georgia | 1 - U. S. Naval Ordnance Test
Station
Inyokern, China Lake
California |
| 1 - President
Marine Corps Equip Board
Quantico, Virginia
Attn: Col Bell | 1 - Commandant
Hq, U. S. Marine Corps
Washington 25, D. C. |
| 5 - Commander
USA Special Warfare Center
Fort Bragg, North Carolina
Attn: Command Develop Dept | |

<p>AD- M62-19-1</p> <p>Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa. DESCRIPTION AND OPERATION OF A HAND HELD WIRE GUN by A. J. Grandy and J. W. Hettel.</p> <p>Memorandum Report M62-19-1, February 1962, 71pp incl illustrations. (OMS Code 5520.12.468 IO, DA Project 596-10-001). UNCLASSIFIED REPORT</p> <p>A hand held version of a wire gun was designed and developed, and a sample lot fabricated for use in controlled tests.</p> <p>During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.</p> <p>Complete descriptions of design and operation of this device are contained in this report.</p> <p>UNCLASSIFIED</p> <p>1. Wire Gun</p> <p>I. Grandy, A. J. II. Hettel, J. W. III. OMS Code 5520.12.468 IO IV. DA Project 596-10-001</p> <p>DISTRIBUTION LIMITATION: Qualified requesters may obtain copies from ASTIA.</p> <p>UNCLASSIFIED</p>	<p>AD- M62-19-1</p> <p>Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa. DESCRIPTION AND OPERATION OF A HAND HELD WIRE GUN by A. J. Grandy and J. W. Hettel.</p> <p>Memorandum Report M62-19-1, February 1962, 71pp incl illustrations. (OMS Code 5520.12.468 IO, DA Project 596-10-001). UNCLASSIFIED REPORT</p> <p>A hand held version of a wire gun was designed and developed, and a sample lot fabricated for use in controlled tests.</p> <p>During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.</p> <p>Complete descriptions of design and operation of this device are contained in this report.</p> <p>UNCLASSIFIED</p> <p>1. Wire Gun</p> <p>I. Grandy, A. J. II. Hettel, J. W. III. OMS Code 5520.12.468 IO IV. DA Project 596-10-001</p> <p>DISTRIBUTION LIMITATION: Qualified requesters may obtain copies from ASTIA.</p> <p>UNCLASSIFIED</p>
<p>AD- M62-19-1</p> <p>Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa. DESCRIPTION AND OPERATION OF A HAND HELD WIRE GUN by A. J. Grandy and J. W. Hettel.</p> <p>Memorandum Report M62-19-1, February 1962, 71pp incl illustrations. (OMS Code 5520.12.468 IO, DA Project 596-10-001). UNCLASSIFIED REPORT</p> <p>A hand held version of a wire gun was designed and developed, and a sample lot fabricated for use in controlled tests.</p> <p>During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.</p> <p>Complete descriptions of design and operation of this device are contained in this report.</p> <p>UNCLASSIFIED</p> <p>1. Wire Gun</p> <p>I. Grandy, A. J. II. Hettel, J. W. III. OMS Code 5520.12.468 IO IV. DA Project 596-10-001</p> <p>DISTRIBUTION LIMITATION: Qualified requesters may obtain copies from ASTIA.</p> <p>UNCLASSIFIED</p>	<p>AD- M62-19-1</p> <p>Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa. DESCRIPTION AND OPERATION OF A HAND HELD WIRE GUN by A. J. Grandy and J. W. Hettel.</p> <p>Memorandum Report M62-19-1, February 1962, 71pp incl illustrations. (OMS Code 5520.12.468 IO, DA Project 596-10-001). UNCLASSIFIED REPORT</p> <p>A hand held version of a wire gun was designed and developed, and a sample lot fabricated for use in controlled tests.</p> <p>During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.</p> <p>Complete descriptions of design and operation of this device are contained in this report.</p> <p>UNCLASSIFIED</p> <p>1. Wire Gun</p> <p>I. Grandy, A. J. II. Hettel, J. W. III. OMS Code 5520.12.468 IO IV. DA Project 596-10-001</p> <p>DISTRIBUTION LIMITATION: Qualified requesters may obtain copies from ASTIA.</p> <p>UNCLASSIFIED</p>

<p>AD- M62-19-1</p> <p>Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa. DESCRIPTION AND OPERATION OF A HAND HELD WIRE GUN by A. J. Grandy and J. W. Hettel.</p> <p>Memorandum Report M62-19-1, February 1962, 71 pp incl illustrations. (OMS Code 5520.12.468 IO, DA Project 596-10-001). UNCLASSIFIED REPORT</p> <p>A hand held version of a wire gun was designed and developed, and a sample lot fabricated for use in controlled tests.</p> <p>During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.</p> <p>Complete descriptions of design and operation of this device are contained in this report.</p> <p>UNCLASSIFIED</p> <p>1. Wire Gun</p> <p>I. Grandy, A. J. II. Hettel, J. W. III. OMS Code 5520.12.468 IO IV. DA Project 596-10-001</p> <p>DISTRIBUTION LIMITATION: Qualified requesters may obtain copies from ASTIA.</p> <p>UNCLASSIFIED</p>	<p>AD- M62-19-1</p> <p>Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa. DESCRIPTION AND OPERATION OF A HAND HELD WIRE GUN by A. J. Grandy and J. W. Hettel.</p> <p>Memorandum Report M62-19-1, February 1962, 71 pp incl illustrations. (OMS Code 5520.12.468 IO, DA Project 596-10-001). UNCLASSIFIED REPORT</p> <p>A hand held version of a wire gun was designed and developed, and a sample lot fabricated for use in controlled tests.</p> <p>During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.</p> <p>Complete descriptions of design and operation of this device are contained in this report.</p> <p>UNCLASSIFIED</p> <p>1. Wire Gun</p> <p>I. Grandy, A. J. II. Hettel, J. W. III. OMS Code 5520.12.468 IO IV. DA Project 596-10-001</p> <p>DISTRIBUTION LIMITATION: Qualified requesters may obtain copies from ASTIA.</p> <p>UNCLASSIFIED</p>
<p>AD- M62-19-1</p> <p>Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa. DESCRIPTION AND OPERATION OF A HAND HELD WIRE GUN by A. J. Grandy and J. W. Hettel.</p> <p>Memorandum Report M62-19-1, February 1962, 71 pp incl illustrations. (OMS Code 5520.12.468 IO, DA Project 596-10-001). UNCLASSIFIED REPORT</p> <p>A hand held version of a wire gun was designed and developed, and a sample lot fabricated for use in controlled tests.</p> <p>During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.</p> <p>Complete descriptions of design and operation of this device are contained in this report.</p> <p>UNCLASSIFIED</p> <p>1. Wire Gun</p> <p>I. Grandy, A. J. II. Hettel, J. W. III. OMS Code 5520.12.468 IO IV. DA Project 596-10-001</p> <p>DISTRIBUTION LIMITATION: Qualified requesters may obtain copies from ASTIA.</p> <p>UNCLASSIFIED</p>	<p>AD- M62-19-1</p> <p>Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa. DESCRIPTION AND OPERATION OF A HAND HELD WIRE GUN by A. J. Grandy and J. W. Hettel.</p> <p>Memorandum Report M62-19-1, February 1962, 71 pp incl illustrations. (OMS Code 5520.12.468 IO, DA Project 596-10-001). UNCLASSIFIED REPORT</p> <p>A hand held version of a wire gun was designed and developed, and a sample lot fabricated for use in controlled tests.</p> <p>During limited development time the device displayed excellent operational characteristics. Further testing will be required to accurately determine adequacy against intended targets.</p> <p>Complete descriptions of design and operation of this device are contained in this report.</p> <p>UNCLASSIFIED</p> <p>1. Wire Gun</p> <p>I. Grandy, A. J. II. Hettel, J. W. III. OMS Code 5520.12.468 IO IV. DA Project 596-10-001</p> <p>DISTRIBUTION LIMITATION: Qualified requesters may obtain copies from ASTIA.</p> <p>UNCLASSIFIED</p>